NASA TECHNICAL MEMORANDUM

NASA TM X-64596



PERFORMANCE VERIFICATION TRAJECTORIES FOR THE McDONNELL-DOUGLAS HIGH CROSS-RANGE SHUTTLE CONFIGURATION

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May 12, 1971

NASA

George C. Marshall Space Flight Center Marshall Space Flight Center, Alabama

TECHNICAL	REPORT	STANDARD	TITLE	DAGE

1. REPORT NO. NASA TM X-64596	2. GOVERNMENT ACCESSION NO.	3. RECIPIENT'S CATALOG NO.
4. TITLE AND SUBTITLE PERFORMANCE VERIFICATION TRADOUGLAS HIGH CROSS-RANGE SHU		5. REPORT DATE May 12, 1971 6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S) Orval E. Etheridge		8. PERFORMING ORGANIZATION REPORT #
9. PERFORMING ORGANIZATION NAME AND AC George C. Marshall Space Flig Marshall Space Flight Center	10. WORK UNIT NO. 11. CONTRACT OR GRANT NO.	
12. SPONSORING AGENCY NAME AND ADDRESS		13. TYPE OF REPORT & PERIOD COVERED
NASA Washington, DC 20546		TECHNICAL MEMORANDUM
15. SUPPLEMENTARY NOTES		14. SPONSORING AGENCY CODE

16. ABSTRACT

Presented in this report are the results of performance verification trajectories based on the McDonnell-Douglas high cross-range two-stage reuseable shuttle configuration for three missions as follows: (1) a 92.6 x 185.2 km orbit with an inclination of 55 degrees launched from the Eastern Test Range, (2) a 92.6 x 185.2 km orbit with an inclination of 28.5 degrees launched from the Eastern Test Range, and (3) a 92.6 x 185.2 km orbit with an inclination of 90 degrees launched from the Western Test Range.

These data verify, from a performance consideration only, the data presented by McDonnell-Douglas in reference 1.

17. KEY WORDS High Cross-Range Shuttle Co Trajectories	nfiguration,	Unclassified-Un E. D. Geissler Director, Aero-A	limited	aboratory
19. SECURITY CLASSIF. (of this report) UNCLASSIFIED	20. SECURITY CLA	, , ,	21. NO. OF PAGES	22. PRICE \$3.00

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PERFORMANCE VERIFICATION TRAJECTORIES FOR THE MCDONNELL-DOUGLAS HIGH CROSS-RANGE SHUTTLE CONFIGURATION

SUMMARY

Presented in this report are the results of performance verification trajectories based on the McDonnell-Douglas high cross-range two-stage reusable shuttle configuration for three missions as follows: (1) a 92.6 x 185.2 km orbit with an inclination of 55 degrees launched from the Eastern Test Range; (2) a 92.6 x 185.2 km orbit with an inclination of 28.5 degrees launched from the Eastern Test Range; and (3) a 92.6 x 185.2 km orbit with an inclination of 90 degrees launched from the Western Test Range.

I. INTRODUCTION

The purpose of this study is to verify the performance of the McDonnell-Douglas high cross-range space shuttle configuration as stated in the reference for three missions: (1) insertion of the orbiter with a cargo of 11,339.807 kg (25,000 lbs) into an orbit of 92.6 x 185.2 km with an inclination of 55 degrees with the vehicle being launched from the Eastern Test Range (ETR); (2) insertion of the orbiter with a cargo of 29,483.504 kg (65,000 lbs) into an orbit of $92.6 \times 185.2 \text{ km}$ with an inclination of 28.5 degrees and launch from the Eastern Test Range; (3) insertion of the orbiter with a cargo of 18,143.694 kg (40,000 lbs) into an orbit of $92.6 \times 185.2 \text{ km}$ with an inclination of 90 degrees and launch from the Western Test Range.

For all missions investigated, the trajectory shaping and vehicle launch weight were optimized to allow the maximum amount of weight to be placed into orbit. Also, the propellant tanks were loaded to capacity, and this amount was consumed in flight to orbit insertion.

Although there were some discrepancies in weights in the comparisons made between the data obtained from reference 1 and the trajectory simulations, these discrepancies are small and can be attributed to the difference in methods of trajectory simulation.

The defined vehicle for each mission as stated in reference 1 displays the capability of injecting approximately the quoted amount of weight into orbit. Therefore, the data presented in the reference are assumed to be correct from a performance consideration only.

Appendix A contains the data obtained from the reference and the aerodynamic data, Appendix B contains tables and graphs of performance data obtained from the trajectory simulations, and Appendix C contains tables of pertinent trajectory parameters from the simulations along with definitions and symbols.

II. ASSUMPTIONS USED FOR THE TRAJECTORY SIMULATIONS

The following items are the assumptions used for the performance calculations:

- 1. The configuration aerodynamic data were obtained from McDonnell-Douglas. These data are presented in Appendix A, Table A-4.
- 2. The weight data for each mission are presented in Appendix A, Tables A-1, A-2, and A-3 as specified in the reference.
- 3. The missions with cargos of 11,339.807 and 29,843.504 kg with inclinations of 55 and 28.5 degrees, respectively, were launched from Eastern Test Range. The mission with a cargo of 18,143.694 kg and with an inclination of 90 degrees was launched from the Western Test Range.
- 4. The booster and orbiter were loaded to propellant capacity, and the total amount was consumed in flight to orbit injection. The trajectory shaping was optimized to yield the maximum weight at orbit insertion.
- 5. The vehicle lifted off with a vertical rise for 8 seconds. A constant pitch rate was initiated at 8 seconds and continued until 20 seconds of flight. A gravity-turn trajectory was simulated thereafter until separation occurred.
- 6. The vehicle was assumed to be in vacuum flight after orbiter ignition until orbit insertion.
- 7. A 10-second coast period was assumed for booster and orbiter separation sequence.
- 8. The orbiter phase of flight was optimized by the Min-H steepest ascent method from orbiter ignition to orbit insertion.

- 9. The orbiter thrust level and \mathbf{I}_{sp} were adjusted to account for orbiter engine cant angles.
 - 10. The earth was assumed to be a rotating ellipsoid.
- 11. The gross liftoff weight was optimized to yield maximum insertion weight.
- 12. The acceleration was constrained to a 3-g limit by throttling the engines.

III. EXPLANATION OF RESULTS

The results of this study are presented in graphs and tables of Appendices B and C that are self-explanatory. Tables B-1, B-2, and B-3 of Appendix B give a comparison of weight data for each of the three missions. The comparison is made between the data obtained from the reference and the data from the trajectory simulations. It can be seen from these tables that there are some discrepancies in weights, but these discrepancies are small and can be attributed to the difference in methods of trajectory simulation. The error in any weight difference is less than six-tenths of one percent of the total weight involved. Therefore, the weight data as presented by McDonnell-Douglas in the reference are assumed to be correct from a performance consideration only.

IV. CONCLUSIONS

The defined vehicle for each mission displays the capability of injecting approximately the quoted amount of weight into orbit. Therefore, the quoted amount of cargo for each mission is assumed to be correct since it is a function of the total weight injected into orbit and the propellants necessary to complete the mission. The vehicles designed for missions with inclinations of 28.5 and 55 degrees, respectively, have a cargo capability in excess of the 11,339.807 kg (25,000 lbs) and 29,843.504 kg (65,000 lbs). This can be seen from Tables A-1 and A-2 in Appendix A.

V. PRESENTATION OF DATA

- A. Appendix A presents the launch configuration, and weight summaries of the three missions as obtained from the reference along with aerodynamic data,
- B. Appendix B presents graphs and tables as compiled by S&E-AERO-GT that were obtained from trajectory simulations.
- C. Appendix C presents tables of pertinent trajectory parameters from the simulations along with definitions and symbols.

APPENDIX A

DATA OBTAINED FROM MCDONNELL-DOUGLAS

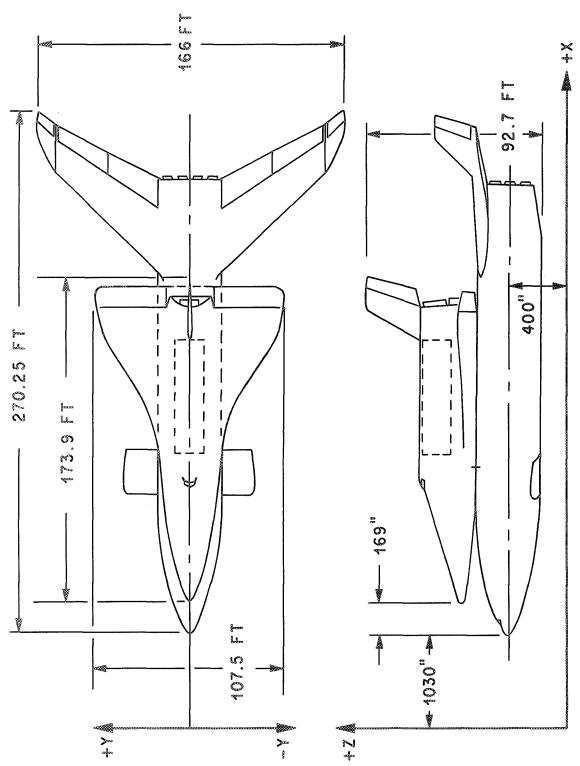


Figure A-1. Configuration'Coordinate Axes High Cross-Range Launch Arrangement

Table A-1. Weight Summary from Reference 1

92.6 x 185.2 km Orbit, 55° Inclination, Cargo 11339,807 kg (25,000 lbs), Gross Vehicle Lift Weight = 4,624,747 lbs. (All weights presented in pounds)

	Launch Weight	Weight	4				١		
	Booster	Orbiter	(Effective)	50% Burn	Injection	On-Orbit	Pre-Retro	Entry	Landing
Wing Group	51458	28311							
Tail Group	14839	5790							
Body Group	146562	62421							
Induced Envir. Protection	76839	32496							
Landing, Recovery, Docking	22810	8963							
Propulsion-Ascent	118120	25275							
Propulsion-Cruise	37116	15246		-					
Propulsion-Auxiliary	4590	11805							
Prime Power	1698	1878							
Elect. Conver. & Distr.	1363	1364							
Hydra, Conver. & Distr.	5290	2016							
Surface Controls	4910	2613							
Avionics	3932	4457							
Environmental Control	4643	7088							
Personnel Provisions	290	210							
Range Safety & Abort	0	0							
Ballast	0	0							
Growth/Uncertainty	25970	18609							
SUBTOTAL (DRY WEIGHT)	520430	228542							
Personnel	700	400							
Cargo	;	31073	31073	31073	31073	31073	25000	25000	25000
Ordnance	0	0							
Residual Fluids	2986	4107							
SUBTOTAL (INERT, WEIGHT)	530697	264122	264122	264122	264122	264122	258049	258049	258049.
Reserve Fluids	11441	14741	14741	14741	14741	8405	8405	8405	8405
In-Flight Losses	22862	10294	8822	8822	8822	3777	0	0	0
Propellant-Ascent	3064000	523996	523996	261998	0	0	0	0	0
Propellant-Cruise	151000	1266	1266	1266	1266	1266	1266	1266	0
Propellant-Maneuv/Acs	1200	29128	29128	29128	29128	15591	10435	1000	0
TOTAL (GROSS-WEIGHT) LB	3781200	843547	842075	580077	318079	293161	278155	268720	266454

Table A-2. Weight Summary from Reference 1 92.6 x 185.2 km Orbit, Inclination of 28.5°, Cargo of 29483.504 kg (65,000 lbs) Gross Vehicle Liftoff Weight = 4,638,543 lbs (all weights are presented in pounds)

	Launch	Launch Weight	Tenition						,
	Booster	Orbiter	(Effective)	50% Burn	Injection	On-Orbit	On-Orbit Pre-Retro	Entry	Landing
Wing Group	51458	28311							
Tail Group	14839	5790							
Body Group	146562	62421							
Induced Envir. Protection	76839	32496				-			
Landing, Recovery, Docking	22810	8963							
Propulsion-Ascent	118120	25275							
Propulsion-Cruise	37116	400							
Propulsion-Auxiliary	4590	11805							
Prime Power	1698	1878							
Elect. Conver. & Distr.	1363	1364							
Hydra, Conver. & Distr.	5290	2016							
Surface Controls	4910	2613						-	
Avionics	3932	4457							
Environmental Control	6494	7088							
Personnel Provisions	290	210							
Range Safety & Abort	0	0						**********	
Ballast	0	0							
Growth/Uncertainty	25970	17174							
SUBTOTAL (DRY WEIGHT)	520430	212261	212261	212261	212261	212261	212261	212261	212261
Personnel	700	400	400	400	400	007	001/	005	007
Cargo	1	79653	79653	79653	79653	79653	40000	40000	40000
Ordnance	0	0	0	0	0	0	0	0	0
Residual Fluids	9827	3883	3883	3883	3883	3883	3883	3883	3883
SUBTOTAL (INERT, WEIGHT)	530657	296197	296197	296197	296197	296197	256544	256544	256544
Reserve Fluids	11441	16482	16482	16482	16482	9944	7766	7766	7766
In-Flight Losses	22862	10294	8822	8822	8822	3777	0	0	0
Propellant-Ascent	3064000	523794	523794	261897	0	0	0	0	0
Propellant-Cruise	149000	0	0	0	0	0	0	0	0
Propellant-Maneuv, ACS	1200	12616	12616	12616	12616	10625	6531	1000	0
TOTAL (GROSS-WEIGHT) LB	3779160	859383	857911	596014	334117	320543	273019	267488	266488

Table A-3. Weight Summary from Reference 1

92.6 x 185.2 km Orbit, 90° Inclination, Cargo 18143.694 kg (40,000 lbs) Gross Vehicle Liftoff Weight = 4,603,692 lbs (all weights presented in lbs)

ran skul	Launch	Launch Weight	Ignition	50% Burn	Injection	On-Orbit	Pre-Retro	Entry	Landing
	Booster	Orbiter	(Effective)					Ì	
Wing Group	51458	28311			Manda A				
Tail Group	14839	5790							
Body Group	146562	62421		,		***************************************			
Induced Envir. Protection	76839	32496							
Landing, Recovery, Docking	22810	8963							
Propulsion-Ascent	118120	25275							
Propulsion-Cruise	37116	400							
Propulsion-Auxiliary	4590	11805							
Prime Power	1698	1878							
Elect. Conver. & Distr.	1363	1364							
Hydra, Conver, & Distr.	5290	2016							
Surface Controls	4910	2613							
Avionics	3932	4457							
Environmental Control	4643	7088				•			
Personnel Provisions	290	210							
Range Safety & Abort	0	0							
Ballast	0	0							
Growth/Uncertainty	25970	17174							
SUBTOTAL (DRY WEIGHT)	520430	212261							
Personnel	700	400							
Cargo	!	- 40000							
Ordnance	0	0							
Residual Fluids	2964	3883							
SUBTOTAL (INERT, WEIGHT)	530777	256544	256544	256544	256544	256544	256544	256544	256544
Reserve Fluids	11441	15281	15281	15281	15281	9275	9275	9275	9275
In-Flight Losses	22862	10294	8822	8822	8822	3777	0	0	0
Propellant-Ascent	3064000	524326	524326	262163	0	0	0	0	0
Propellant-Cruise	155000	0	0	0	0	0	0	0	0
Propellant-Maneuv. Acs	1200	11967	11967	11967	11967	10231	5822	1000	0
TOTAL (GROSS WEIGHT) LB	3785280	818412	816940	554777	292614	279827	271641	266819	265819
A THE PARTY OF THE								1	

Table A-4. Aerodynamic Data

Reference Aera = 929 m² (10,000 ft²)

High Cross-Range Configuration

Mach Number	C _{Do}
0.00	.1053
0,40	.0712
0.50	.0705
0.60	.0730
0.75	.0881
1.05	.1652
1.15	.1662
1.25	.1595
2.00	.1120
3,00	.0778
4.00	.0595
5.00	.0472
7.00	.0382
20.00	.0382

APPENDIX B

PERFORMANCE DATA

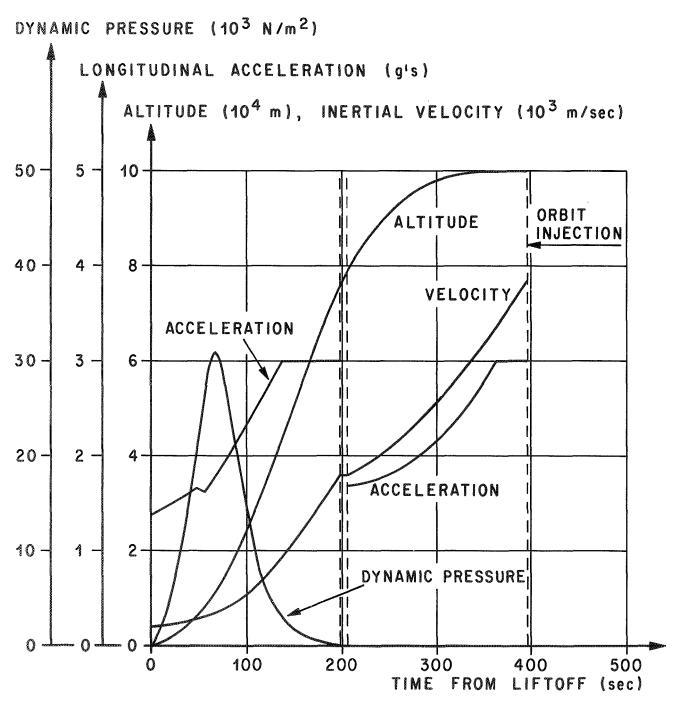


Figure B-1. Design Reference Mission: 92.6 x 185.2 km Orbit, Inclination of 55°, Launched from ETR

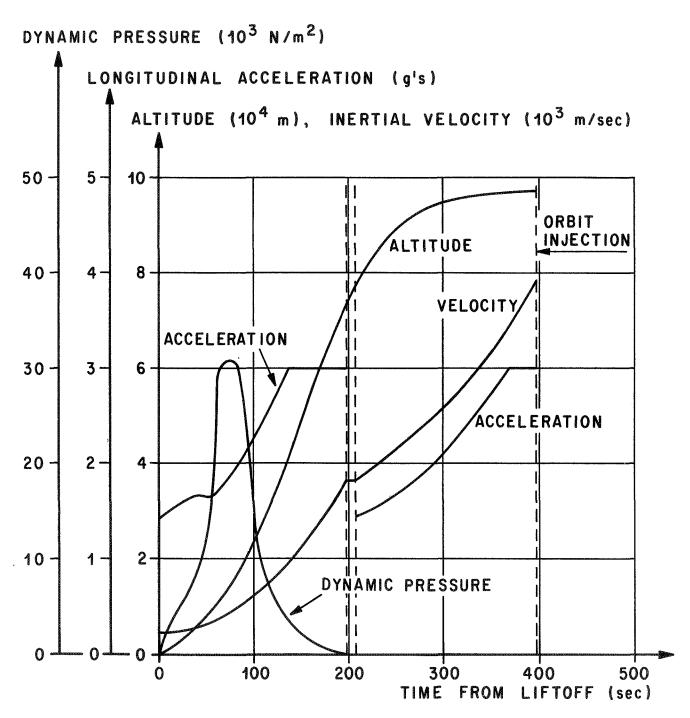


Figure B-2. Due East Mission: 92.6 x 185.2 km Orbit, Inclination of 28.5° , Launched from ETR

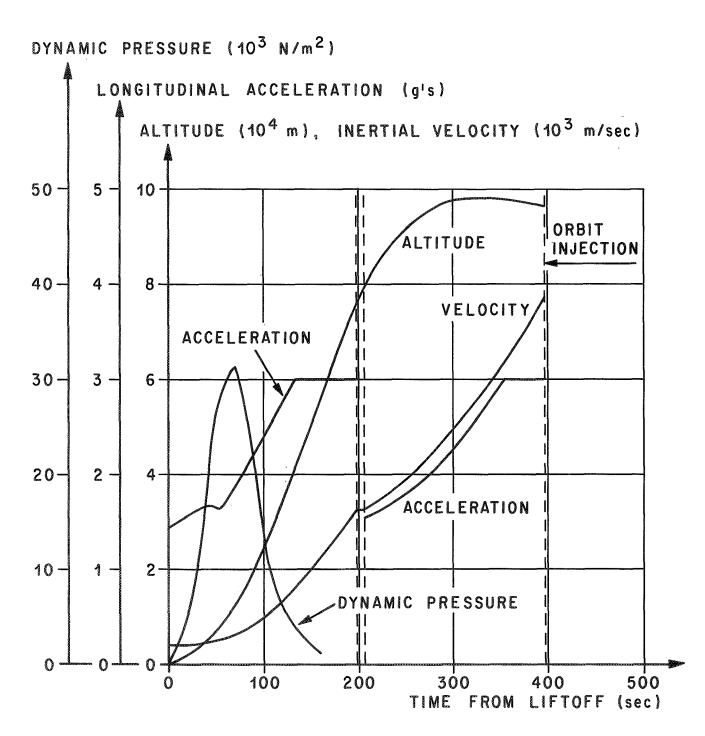


Figure B-3. Polar Mission: 92.6 x 185.2 km Orbit, Inclination of 90°, Launched from WTR

Table B-1. Design Reference Mission

926 x 185.2 km Orbit, 55° Inclination, 11,339.807 kg Cargo Launched from KSC

	1			
Description of Parameter	Units	MDAC Quoted	MSFC Simulated	△ Weight (Simulated- Quoted)
Gross Liftoff Mass	kg	2,097,750	2,096,981	- 769
Booster Propellant Consumed	kg	1,389,807	1,389,807	О
Booster Burn-out Weight*	kg	707,943	707,174	-769
Booster Separation Weight	kg	325,316	325,316	0
Total Orbiter Weight	kg	382,627	381,858	- 769
Orbiter Propellant Consumed	kg	237,670	237,683	+ 13
Orbiter Burn-out Weight	kg	144,278	144,175	-113
Total Booster Weight	kg	1,715,115	1,715,115	0
Booster Sea Level Thrust	N/Eng	2,446,521.8	2,446,521.8	0
Booster Vacuum Thrust	N/Eng	2,691,170.3	2,691,170.3	О
Booster Vacuum I _{sp}	sec	439	439	0
No. of Booster Engines	_	12	12	0
Booster Engine Exit Area	m ²	2.40559	2.40559	0
Booster Engine Cant Angle	deg	0	0	О
Orbiter Vacuum Thrust	N/Eng	2,806,765.6	2,806,765.6	О
Orbiter Vacuum I _{sp}	sec	458.12	458.12	0
Number of Orbiter Engines	-	2	2	0
Orbiter Engine Cant Angle	deg	0	0	0

^{*}Total vehicle weight before separation.

Table B-2. Due East Mission $92.6 \times 185.2 \text{ km Orbit, } 28.5^{\circ} \text{ Inclination, } 29,483.504 \text{ kg Cargo, } \\ \text{Launched from KSC}$

Description of Parameter	Units	MDAC Quoted	MSFC Simulated	∆W (Simulated- Quoted)
Gross Liftoff Mass	kg	2,104,008	2,103,151	- 857
Booster Propellant Consumed	kg	1,389,807	1,389,807	0
Booster Burn-out Weight*	kg	714,201	713,344	-857
Booster Separation Weight	kg	324,391	324,391	0
Total Orbiter Weight	kg	389,810	388,953	- 857
Orbiter Propellant Consumed	kg	237,589	237,682	+ 93
Orbiter Burn-out Weight	kg	151,553	151,270	-283
Total Booster Weight	kg	1,714,198	1,714,198	0
Booster Sea Level Thrust	N/Eng	2,446,521.8	2,446,521.8	0
Booster Vacuum Thrust	N/Eng	2,691,170.3	2,691,170.3	0
Booster Vacuum I _{sp}	sec	439	439	0
No. of Booster Engines	_	12	12	0
Booster Engine Exit Area	m ²	2,40559	2.40559	0
Booster Engine Cant Angle	deg	0	0	0
Orbiter Vacuum Thrust	kg/Eng	2,806,765.6	2,806,765.6	0
Orbiter Vacuum I _{sp}	sec	458,12	458.12	0
No. of Orbiter Engines	_	2	2	0
Orbiter Engine Cant Angle	deg	0	0	0

^{*}Total vehicle weight before separation.

Table B-3. South Polar Mission $92.6 \times 185.2 \text{ km Orbit, } 90^{\circ} \text{ Orbit, } 18,143.694 \text{ kg Cargo,} \\ \text{Launched from WTR}$

Description of Parameter	Units	MDAC Quoted	MSCF Simulated	△W (Simulated- Quoted)
Gross Liftoff Mass	kg	2,088,199	2,087,442	- 757
Booster Propellant Consumed	kg	1,389,807	1,389,807	0
Booster Burnout Weight*	kg	698,392	697,635	- 757
Booster Separation Weight	kg	327,167	327,167	0
Total Orbiter Weight	kg	371,225	370,468	- 757
Orbiter Propellant Consumed	kg	237,829	237,682	+147
Orbiter Burnout Weight	kg	132,727	132,786	+ 59
Total Booster Weight	kg	1,716,974	1,716,974	0
Booster Sea Level Thrust	N/Eng	2,446,521.8	2,446,521.8	0
Booster Vacuum Thrust	N/Eng	2,691,170.3	2,691,170.3	0
Booster Vacuum I _{sp}	sec	439	439	0
No. of Booster Engines	-	12	12	0
Booster Engine Exit Area	m ²	2.40559	2.40559	0
Booster Engine Cant Angle	deg	0	0	0
Orbiter Vacuum Thrust	N/Eng	2,806,765.6	2,806,765.6	0
Orbiter Vacuum I _{sp}	sec	458,12	458.12	0
No. of Orbiter Engines	-	2	2	0
Orbiter Engine Cant Angle	deg	0	0	0

^{*}Total vehicle weight before separation.

Table B-4. Sequence of Events of the Mission with an Inclination of $55\,^\circ$ and a Cargo of 11,339.807 kg (25,000 lbs)

EVENT	TIME FROM LIFTOFF (sec)
Liftoff	0
Vertical Rise	0-8
Pitch-over Maneuver	8-20 (pitch rate .35 (deg/sec))
Gravity-turn Flight	20-197.441
Maximum Dynamic Pressure	68,202
Booster G-Limit Reached*	135
Separation	197.441
Coast Period	197.441-207.441
Orbiter Ignition	207.441
Optimum Flight	207.441-403.136
Orbiter G-Limit Reached*	364
Orbit Insertion	403.136

^{*}Approximate time.

Table B-5. Sequence of Events of the Mission with an Inclination of 28.5° and a Cargo of 29,483.504 kg (65,000 lbs)

TIME FROM LIFTOFF (sec)
0
0-8
8-20 (pitch rate = .35 (deg/sec))
20-196.988
68.604
134
196.988
196.988-206.988
206.988
206.988-401.026
364
401.026

^{*}Approximate time.

Table B-6. Sequence of Events of the Mission with an Inclination of 90° and a Cargo of 18,143.694~kg (40,000~lbs)

EVENT	TIME FROM LIFTOFF (sec)
Liftoff	0
Vertical Rise	0-8
Pitch-over Maneuver	8-20 (pitch rate = .346 (deg/sec))
Gravity-turn Flight	20-198.156
Maximum Dynamic Pressure	67.708
Booster G-Limit Reached*	134
Separation	198.156
Coast Period	198.156-208.156
Orbiter Ignition	208.156
Optimum Flight	208.156-407.301
Orbiter G-Limit Reached	356
Orbit Insertion	407.301

^{*}Approximate time.

APPENDIX C PERFORMANCE TRAJECTORY TABLES

Table C-1, Definitions and Symtols for Trajectory Tables

VEHICLE VELOCITY IN THE EARTH FIXED COORDINATE SYSTEM VEHICLE VELOCITY IN THE SPACE FIXED COORDINATE SYSTEM FLIGHT PATH ANGLE, MEASURED FROM LOCAL HORIZONTAL TO FLIGHT PATH ANGLE, MEASURED FROM LOCAL HORIZONTAL ACCELERATION ALONG THE LONGITUDINAL VEHICLE AXIS DYNAMIC PRESSURE DUE TO RELATIVE VELOCITY MACH NUMBER BASED ON RELATIVE VELOCITY EARTH AT TIME Definitions and Symtols for Trajectory Tables INSTANTANEOUS TIME FROM LIFTOFF THE INFRIIAL VELOCITY VECTOR THE RFLATIVE VELOCITY VECTOR INSTANTANEOUS INCLINATION DISTANCE FROM CENTER OF VEHICLE THRUST AT TIME. VEHICLE MASS AT TIME I VFHICLE WEIGHT AT TIME DEFINITION KILOGRAMS F1/SEC**2 MISEC##2 1 R / F T * * 2 NEWTONS Table C-1. DESREEC DESREES DESREES SECONDS MISEC METERS 2**N/N FT/SEC FT/SEC POUNDS POHNOS MISEC TABLE UNITS FEET 710 Ŋ, ~ ^ ~ 3 ACCFLERATION PRESSURE VFL OCITY VFLOCITY RE LATTUE INERTIOL ALTITUDE SAMMA S GAMMA. R LONGIT. SY MR OL WEIGHT TROUST MACH JMI. S V V V INCL N A O

Table C-1 (Continued)

DEFINITION	RFLATIVE PITCH ATTITUDE ANGLE MEASURED FROM RELATIVE VELOCITY IN ATMOSPHERE, INERTIAL PITCH ATTITUDE ANGLE FOR OUT OF ATMOS, FLIGHT	AXIAL FORCE OF THE VEHICLF	AZIMUTH ANGLE,MEASURED IN SPACE FIXED SYSTEM FROM NORTH. TO SOUTH OVER EAST	GEOCENTRIC LATITUDE OF VEHICLE POSITION AT TIME T	FARTH RELATIVE LONGITUDE AT TIME T (+EAST)	APOLLO 13 PITCH ATTITUDE COMMAND	APOLLO 13 YAW ATTITUDE COMMAND	SURFACE RANGE FROM THE INSTANTANEOUS LAUNCH SITÉ POSITION TO THE SURVEHICLE POINT	INERTIAL RANGF ANGLE MEASURED FROM THE INERTIAL RADIUS VECTOR THROUGH THE LAUNCH SITE AT LIFTOFF TO THE VEHICLE GEOCENTRIC RACTUS VECTOR	SURING ATMOSPHERIC FLIGHT THE ANGLE BETWEEN THE AERODYNAMIC VELOCITY VECTOR AND THE THRUST VECTOR. DURING VACUUM FLIGHT THE ANGLE SETWEEN THE INERTIAL VELOCITY VECTOR AND THE THRUST VECTOR	LATITUDE OF INSTANTANEOUS VACUUM IMPACT POINT	EARTH PELATIVE LONGITUDE OF INSTANTANEOUS VACUUM IMPACT Point (+Fast)
UNITS	DE GREFS	V 2 J	DF GP EES	DFGREES	0338530	DEGREES	DESPEES	Z.	DEG	0E3	E E	0 F 3
14 3L E	3	3	ι:	и [.]	ư	цŋ	· ur.	Œ	· ·	ω	u	æ
SY WR OL	A E F D	DRAG	A2.S	LATTTUDE	LONGITUDE	CHIP	CHIY	RANGE	RANGF ANG.	TOTAL ALPHA	IMD. IAT.	IMD. LONG.

Table C-1 (concluded)

SYMBOL	TABLE	UNITS	DEFINITION
AFRO HEATING TNDICATOR		N=M/M**2	INTESRAL E(Q*VR/(PI/2-ALPHA))DI3 FROM O TO T
AL PHB*0	~	N-RADIAN I R-DEGRFF	PRODUCT OF ANGLE OF ATTIACK AND DYNAMIC PRESSURE
DES. NODE	~	0.53	ANGLE TO THE DESCENDING NODE OF THE INSTANTANEOUS FLIGHT PLANF MEASURED FROM THE LAUNCH MERIDIAN AT LIFTOFF (+EASI)
×	σc	Σ LT F=	APOLLO 13 POSITION COORDINATES
; »·	στ	2 H	APOLLO 13 POSITION COORDINATES
2	οc	Σ II.	APOLLO 13 POSITION COORDINATES
X D O T	σ	M/SEC FT/SEC	APOLLO 13 VELOCITYCOMPONENTS
YDOT	σ	M/SEC F1/SEC	APOLLO 13 VELOCITY COMPONENTS
ZE 01	σ	M/SEC F1/SEC	APOLLO 13 VELOCITY COMPONENTS
XDDOT	C I	M/SEC**2 F1/SEC**2	APOLLIJ 13 ACÇELERATION COMPONENTS
YDDOT	Ē	M/SFC**2	APOLLO 13 ACCELERATION COMPONENTS
Z0001	<u>0</u>	M/SEC**2 F1/SEC**2	APOLLO 13 ACCELERATION COMPONENTS

Table C-2. Trajectory Tables for the Mission with an Inclination of $55\,^\circ$ and a Cargo of 11,339.807 kg (25,000 lbs)

	TIME	INERTIAL M/SEC	VELOCITY FIASEC	RELATIVE M/SEC	RELATIVE VELOCITY M/SEC FT/SEC	GAMMA S DEG	GAMMA R Deg
LIFT-OFF	000	408.933	1341.643	000*	000	000	-F.228
	0.00	4£18 »-933	1341 .643	000.	000*	000	-6.228
	. 000 %	409.294	1342.827	17.234	56.545	2.413	89.839
	8.000	410.443	1346 .596	35.275	115.731	4.930	89.837
BEGIN TILT	8. 000	410.443	1346.596	35.275	1.15.731	4 .930	89.837
	12.000	412,875	-1354 -578	54.0.131	177,595	7.533	89.157
	18,000	417.151	1368.607	73.831	242.227	10.186	87.720
	- 20° 000	423.371	1389.011	94°439	309-839	12,857	86.022
END TILT	23, 000	423.371	1389.011	94.439	309.839	12.857	86.022
	24× PDD	431,529	1415,778	116.037	380 .697	15.520.	84 - 305
	28,000	442.103	1450.471	138.733	455 . 162	18.119	82 . 323
	32.080 -	462.534	1493 -76B ·	-162:607	533 #487	24 +600	80 -108
	36,000	471.253	1546.104	187.721	615.882	22 4 905	17.698
		4-90.028	3607.703	214.111	702 "464	616.42	75 .125
	44° 000	511.537	1678-272	241.671	792 - 883	26.768	72 421
		535 _e 519	1756.951	270.144	886 .299	. 28 . 220	69 .615
	52, 000	563 .478	1841.924	298.963	980 .850	29.287	6E .728
	- 56.000	5-88-8	1932.11E	327 * 990	1076-084	54.615	63.777
	60,000	518.272	2028.451	357,889	1174 0177	30 •344	60.778
10 KMS.	62. 660	639.400	2097.768	379 • 080	1243.700	30.461	58.769
	54, 000	929*055	2134.533	390.257	1280.370	30 • 486	57 . 757
	68.000	6.86.377	2251.892	425.747	1396.809	30.433	54.746
O MAXINUM	58. 202	688.776	2258.123	427.626	1402.974	30 .425	54 . 595
	72.000	725.880	2381 .49E	464 a 768	1524 .828	30.200	51 .778
ST XIV	74° N34	748.152	2454.567	486.738	1596.911	30 a013	50 -250
	76	769.435	2524 . 394	507 - 731	1665,783	29.808	48 .879
	40, 000	917.321	2681.498	554.983	1820.811	29.278	46.073
	84.000	869,649	2853.179	606.673	1996.398	28.629	43.379
	9 R. OOA	926 . 294	3039.021	662.691	2174 0151	27.875	40.809
		987, 175	3238 . 766	722.544	2371.863	27.037	38.368
	96, 000	1052.227	3452-188	787 -408	2583 - 358	26 •1 35	36.059
		- + 121 x 378-	36 79 . 061	856.014	2808.446	25.186	33 +882
	104, 000	1194.557	3919.151	928.700	3046.917	24 °209	31.833
	108-000	1271,634	4172,026	1005 - 336	3298.346	23.215	29.908

Trajectory Tables for the Mission with an Inclination of 55°

			(Continued)	(pent			
		MDC/HCR I=55	5.0 FUEL 3064K+524K	(25K	PAYLOADI		

	TIME	INERTIAL	VEL OCITY	RELATIVE	VELOCITY	GAMMAS	GAMMA R
	· SEC	MISEC	FT/SEC	MISEC	FT ASE C	DE 6	DE 6
	112.000	1352,569	4437.561	1085.886	3562.618	22,219	28.100
	116,000	1437,353	4715.741	3170.348	3839.725	21 .229	26.404
	120.000	1526,009	5006.591	1258,730	4429 and 1	20,253	24 .814
	128,000	1714.969	5626.5440	1447,313	4432413	18.368	21,925
also de complègnement de la complègnement de l	132,000	1815.388	5.955.999	1547.618	5077.488	17.466	20.614
	136.000	1919,455	6297.425	1651,611	5418.670	16,595	19,386
	140,000	2024-679	6642 548	1756.760	5763 4650	15.752	18.233
	144.000	2130,625	F990.238	1862,633	6111.001	350.03	5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
	152.000	2344.514	7691 974	1959-190 2076-395	6812°319	13,396	15,165
to the second completely and the completely of the party of	156,000	2452,382	8045.873	2184 .214	7166.055	12.669	14 , 255
	160,000	2560,822	8401.648	2292 . F.15	7521 . 702	11.970	13,395
	164,000	2559.804	8759,199	2401.569	7879.152	11 . 2 98	12,580
	168.000	2779.299	9118.435	2511.047	8238 ,344	10.654	11 .807
	172,000	2889.782	9479.271	2621 aD24	8599°161	10,035	11 .075
	176.000	2999,728	9841.628	7731 .475	8961 2534	9.442	10,379
to van tille state opposite opposite to the state of the	184,000	3221.922	10570.611	7953.707	9690 641	8,329	9.091
	188,000	3333,628	10937.099	3065 445	10057.235	7.807	8.494
	192.000	3445.713	11304.834	3177.571	10425 * 102	7 . 306	7 . 927
	196, 000	3558,161	11573,758	3290.066	10794,180	6.828	7.8387
	197,441	3598.744	11806.903	3330,667	10927 . 386	099°9	7 .199
SE PARALLON	197,441	3598.744	11806,903	3330.667	10927.a386	6.560	7.199
	200-000	3595,939	007.797.1	5527.615	1091/*5/2	6 * 55 5	ا م م م م م م
:	207-000	7588 577	11727 200	7719 545	10902 4550	10 ° 0 ' 10 ' 10 ' 10 ' 10 ' 10 ' 10 ' 1	5.902
NOTITION 15 NOTITION	207, 441	3588.532	11773,399	3319,545	10890 896	2 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	5 .902
BEGIN MIN-H	207.441	3588.532	11773 . 399	3319,545	10890,896	5 .458	5 .902
-	208. DDu	3596 .0 75	11798.146	3327 . 184	10915 631	5.415	5 . 455
	216.000	3706.042	12158.931	3437 . 179	11276 326	4 .825	5 ,204
	224.000	3820.024	12532,886	3551 .018	11650 221	4 .2 75	4 599
-	232-000	3938, 162	12420.478	3569 203	12038.067	5.765	4 00 59
1	240,000	4(15(1.5)	155220255	251918152	12440.067	5 m 2 d 1	5 22 21

Trajectory Tables for the Mission with an Inclination of 55° and a Cargo of 11,339.807 kg (25,000 lbs) Table C-2.

(Continued)

MDC/HCR I=55.0 FUEL 3D64K+524K (25K PAYLOAD)

	TIME	INFRIIAL	VELOCITY -FT/SEC	RELATIVE M/SEC	VELOCITY F1/SEC	GAMMA S Deg	GAMMA R DEG
The state of the s	248,000	4187.568	13738,739	3918 - 782	12855.897	2.848	3.043
	-256.000	4319,216	14170.657	4050 . 549	13289.201	2.442	2.605
	254,000	4455.787	14618.723	4187.753	13737.707	2.071	2 .203
	272,000	4597.531	15083.763	4329.143	14203.226	1 . 731	1.838
	290,000	4744.730	15566.700	4476.497	14696 4671	1 .422	1 .508
	- 988.680 -	4897.699] E R68568	4629 e67 R	15189.068	1 . 1 44	3 \$2 30
	296, 000	5056.791	16590 .521	4788.886	15711 4567	8. 8. 8. 8.	.945
	364.000	5222.402	17133.864	4954 .665	16255 463	.675	.711
	312, 000	5394.979	17700.063	5127 412	16822 4218	. 483	. 5U 8
	320°000	5575,029	18290.776	5307 . 630	17413.485	.317	e333
	328,000	5763.123	18907.883	5495 4891	19031 4138	.179	.188
	-336 chm)	5959.013	19553.522	- 5692 845 ··	18677.312	* 067	01:0
	344, 000	6185.149	20230-147	5899.239	19354 4459	019	020
	352+000	6382.687	20940.574	F115,932	20065.394	080	083
	350, 000	6610-423	21687.739	6343.816	20813 .045	115	120
	368.000	6844.997	22457,339	E578.528	21583 . 1196	129	135
	376,000	7079.665	23227.250	6813 4315	72353 4395	127	132
**************************************	284.000	-7314.466	23997 593	7048 -217	23124 .073	-,109	1.13
	392, 000	7549.363	24768,252	7283.201	23895 .018	075	078
	400.000	7784.318	25539.102	7518.227	24666.100	024	025
I NOTE OF LINE	403, 136	7876.417	25841,254	7610.350	249F8.34D	000°-	_•nnu
!!!	40.136	7876.417	25841.264	7610.350	24968.340	000	gggo-

Table C-2. Trajectory Tables for the Mission with an Inclination of 55° and a Cargo of 11,339.807 kg (25,000 lbs)

(Continued)

MOCZHER I=55.0 FUEL 30648+5748 (258 PAYLOAD)

	7.87	V V V N	UFIGHT	THRUST	5.1	LONGIT. A	A CCEL ERATION
) H.V.	KEX	184	Z	L85	M/(SEC)50	FIZECISO
				,	:		American de la company de la c
1 1F T-0FF	000.	7.096980.7	4623051.2	29358262 • 0	6.89999.9	13.97	45.84
	004.	2086980.7		29358262 *P	62999999	13.97	45.84
	4. nno	2066975.5	4556900.8	79769628.0	6602555.1	14 .20	46 .59
	8.000	2036970.2	4490750.5	29404510.7	6610397.0	14.40.	47.2E
BFGIN IILI	9,000	2036970.2	4490750.5	29404510.7	6610397.0	14.40	47.26
The same of the sa	12,000	200F9E4.9	4424600.1	29463132.2	. 6623575.1	14.61	47.93
	15, 004	1976959.6	4358449.7	29545450	6642074.7	14.82	48.62
	20,000	1946954.3	4292299.4	79650560.7	6665711.2	.15.04.	49.34
F ND 111.1	7 U. NOU	1946954.3	4292299.4	29550560 • 7	6665711 *2	15 🛍	49.34
	74.000	1916949.0	4226149.1	29777166.5	6694173.4	2	50.11
	24, 000	1886943.7	4159998.7	29923193.2	6727001.5	15.52	50 . 93
	12.000	1856938 4	4093848.4	30085916.0		15.76	51272
	36,000	1826933.1	4027698.1	30262046.7	803178	16.00	52 .49
	40.000	1796927.8	3961547.7	30447741.0	84.4	16.20	53,16
	44, 000	1766922.5	3895397 . 4	3NE38882 .2	6887894 .8	16.36	53.68
	48,000	1736917.2	3829247.1	30831133.5	6931114.6	16.34	53.61
	52,000	1706912***	3763096.7	31020006 • 0	6973574.8	16.22	53.21
	56 . 000	1676906.7	3.69.694.6.4	31201394.7	J014352 .6	16.05	52 . 65
	60.000	1646901.4	763079F.n	31371787.7	7052658.5	16.26	53,36
JO KMV.	62.660	1626950.9	3586812.7	31477826.7	7076497.0	16.57	54 • 36
	84. OOU	1615896.1	3564545.7	31578887.2	7087975.9	16.73	5¢ °90
	F8.UMD	1586890.8	3498495.3	31671205.5	7119970.3	17,28	56,68
M MAXIMUM	6 R. 202	1585378.1	3495160.5	31677947.2	7121485.9	17.30	56 .77
and the control of th	72.000	1556885.5	3.432345 .0	31796726 5	7148188.5	17.91	58 4 75
14 KMS.	ካ ር () "ካረ	1541180.9	3397722.2	31855375.7	7161373.4	18.27	59°94
	76.000	1526880.2	33661944.7	31904457.5	7172407.4	18.62	61 .09
	43, 000	1495874.9	3300044.3	31994107.5	7192560 4	19 .40	63.66
	84.000	1466869.6	7233894 . F	32065944.5	7208711.1	20.17	
	94,000	1436864.3	3167743.6	3212154M.n	7221209.5	20.91	68.61
The state of the s	42.000	1406859.1	3101593.3	32164262.2	7230813.9	21.65	71.02
	96.000	1376853.8	3035443.0	37196792.5	7238126 49	22 . 3 9	73.41
	100.000	1346848.5	2969292 E	32221380.5	7243654 .6	23.10	75.78
	134, 000	1316843.2	29113142.3	32239882 .5	7247813.9	23 .81	78.11
	108,000	1286837.9	J. 266958c	32253799.2	7250942 •6	24.51	80.40

Trajectory Tables for the Mission with an Inclination of 55° and a Cargo of 11,339.807 kg (25,000 lbs) Table C-2.

TIME MASS WEIGHT NHRUST LAS HOUST LES NO LES								
172, 000 1256872.5 7770841.6 37264178.2 7553275.9 755.221 755.000 1256827.3 7710841.6 37274174.2 7555275.9 755.911.9 755.91.9 755.911.9 755.9	The second secon	TIME	MASS	WETGHT	THR	151		ACCELERATION
112.000 1256832.6 2771841.6 3224178.7 7255006.1 25.92 85		- 233 -	У. 9 У	185	2	Sal	M/(SEC)50	FT//SEC) S0
116, 000 1226827,		112.000	56832	277711841.6	32264178.2	53275	LC:	82 . 72
120.000 11968122.0 2638540.9 37227570.2 87442 89511.9 128.000 1156816.7 257390.6 3723779.5 257332.8 27442 89511.9 128.000 115691.5 25464089.9 37287789.6 7257391.9 28.200 138.000 10175947.8 2374263.6 37287789.6 7754449.0 29.412 29.	to the state of th	116.000	25827	2704691.3	32271874.7	55006	S	Ġ,
128, 000 116811.6 2573394.6 32281179.5 7557232.8 27.42 99 128, 000 1136811.6 234262.6 258,20 95 138, 000 1136812.6 234263.6 37281189.5 7554931.9 95 91 91 91 91 91 91 9		120.000	96822	2638540.9	32277570.2	56286	œ	7.5
126,000 1136811.5 232841888.7 7558931.9 294.2 136,000 1076947.8 234263.6 3182570.5 7558449.0 294.2 136,000 1047748.4 2374263.6 3182570.5 7558449.0 294.2 144,000 1047748.4 2374263.6 3182570.5 294.2 36.40 152,000 991856.2 2186602.5 297584.9 6577567.9 152,000 991874.4 217492.5 297584.0 6797105.8 29.42 152,000 991874.4 217492.5 297584.0 6797105.8 29.42 152,000 991874.4 217492.5 297564.0 6797105.8 29.42 154,000 991874.4 2195963.5 2618864.0 297752.9 156,000 991874.4 2195963.5 251842.9 29.42 156,000 991874.1 291873.2 291874.5 29.42 156,000 991874.1 291873.2 291874.5 29.42 156,000 991874.1 291873.2 291874.6 29.42 156,000 99187.1 291873.2 291873.2 291873.1 197,000 775240.4 776510.7 2782762.7 291876.4 29.42 198,000 775240.4 776510.7 2782762.7 29.42 198,000 775240.4 776510.7 2782762.7 29.42 198,000 775240.4 776510.7 2782762.7 29.42 198,000 775240.4 776910.2 2782762.7 29.42 198,000 775240.4 776910.2 2782762.7 29.42 198,000 775240.4 776910.2 2782762.7 4787876.1 29.42 198,000 775240.4 776910.2 2782762.0 2782762.0 198,000 775240.4 776910.2 2782762.0 29.42 198,000 775240.4 776910.2 27842.4 29.42 198,000 775240.4 776910.2 27842.4 29.42 198,000 775240.4 776910.2 27842.4 29.42 198,000 775240.4 776910.2 27842.4 29.42 198,000 775240.4 776910.2 27842.4 29.42 198,000 775240.4 776910.2 27842.4 29.42 198,000 776230.3 167870.4 29.42 198,000 776230.3 167870.4 29.42 200,000 776230.3 167870.4 29.42 200,000 776230.3 167870.4 29.42 200,000 776230.3 278424.4 29.42 200,000 776230.3 278424.4 29.42 200,000 776230.3 278424.4 29.42 200,000 776230.3 278424.4 29.42 200,000 776230.3 278424.4 29.42 200,0	The state of the s	- 124° 000	66816	572390	32281779.5	57232	27.42	6.6
135,000 1015686.2 2440889, 9 37287189, 5 7564449, 0 794,01 955 136,000 1047748, 4 2374263.6 31875570.6 31547672.9 29,42 96 96 96 96 96 96 96 9		128.000	M	2506240.2	32284889.2	7257931 .9	28.20	2,52
156.000		132, 848	1185806-2	24413089*9	32287189*5	7258449 en	σ (un (
144,000		136.000	1076947.8	25/4255.6	51825570.5	7154672°9		ຸດ
152.000 965014.4 7177492.6 78455744.2 6777567.9 79.42 965014.4 7177492.6 7765710.2 6777567.9 79.42 965014.4 7177492.6 7765710.2 6777567.9 79.42 965014.4 7177492.6 7765710.2 6777567.9 79.42 965014.4 7176710.2 6777567.9 79.42 965014.4 7176710.2 79.42 965014.4 7176710.3 79.42 965014.4 79.42		140,000	- 1047748.4 - 1010705	23/19889.9	30941115.5	6955839.5	ت د د	9 9 8 8 8 8 8 8 8
152,000 9E5014,4		148,000	991876	2186502.5	29258462.0	6577563.9	• 0	יט שני
156, 000 938979, 0 2070004, 0 27572E4, 2 6721972, 0 29,42 96 160,000 938574, 6 2014087, 3 269212E4, 2 6152141, 0 29,42 96 164,000 864900, 8 190677, 9 24766711, 0 572732, 6 29,42 96 172,000 818838, 1 190577, 9 2476971, 1 572732, 6 29,42 96 172,000 818838, 1 1805229, 0 2417671, 1 29,42 96 184,000 775240, 4 775240, 4 775240, 4 775240, 6 775240, 6 775240, 6 775240, 6 775240, 7		152.000	965014.4	7177492.F	28455744.2	6397105.8	σ.	96.52
FEG. DDD 913574.6 2014087.3 26921264.7 61652141.0 29.42 96 96.44 96 96 96 96 96 96 96		156,000		20 70004 . 9	27676710.2	6221972 .O.	4 . 6	96 = 52
164,000		160.000	913574.6	2014087.3	26921264.2	6052141.n	or:	r.
FR. DND	The state of the s	154.000	488902.0	1359693 \$	6188564	F 387445 49	O:	96 *52
175,000		168.000	864900.8	1906779.9	5476711	5727392 "5	o.	е :
100,000	The second secon	172,000	-841553 43	1855307 4	4784793	5571842.9	Q`Q	96 52
194,000 77524U.4 1709112.5 7752762.2 577551.1 29.42 96 96.00 75540.4 1709112.5 775761.1 29.42 96 96.00 735972.8 1618133.1 2204474.6 29.42 96 96.00 77472.7 1574481.7 21019549.5 4725382.7 29.42 96 96.00 77473.7 1574481.7 21019549.5 4725382.7 29.42 96 96 97.441 381857.3 841851.2 20.00 20.00 381857.3 841851.2 20.00 20.00 381857.3 841851.2 2813531.1 1261972.0 14.73 49 86 86 86 86 86 86 86 8		190.000	1 0 2 2 3 0 L	1755510.7	712220717	0-1357252	٦0	ម
199, 000 754323.5 1662998.7 22204774.0 4991831.8 29.42 96 95, 000 735972.8 1618133.1 21603876.0 4856744.6 29.42 96 95, 000 714172.7 1574481.3 21603876.0 4856744.6 29.42 96 96 96 96 96 96 96 9		184,000	775240.4	1709112.5	278227E2 "2	5120751.1	- 0	ຸທ
192,DDQ 733972,8 1618133,1 21603876,0 4856744,6 29,42 96 196,000 714172,7 1574481,3 21019549,5 4725382,7 29,42 96 197,441 707173,7 1559051,2 20813064,0 29,42 96 200,000 381857,3 841851,2 .0 .0 .0 207,401 381857,3 841851,2 .0 .0 .0 207,401 381857,3 841851,2 .0 .0 .0 207,401 381857,3 841851,2 .0 .0 .0 207,401 381857,3 841851,2 .0 .0 .0 207,401 381857,3 841851,2 .0 .0 .0 207,401 381857,3 841851,2 .0 .0 .0 207,401 381857,3 841851,2 .0 .0 .0 207,401 381857,3 841851,2 .0 .0 .0 207,401 381857,3 841851,2 .0 .0 .0 207,401 381857,3 841851,2 .0 .0 .0 207,401 381857,3 841851,2 .0 .0 .0 207,401 381857,3 841851,2 .0 .0 .0 207,401 381857,3 841851,2 .0 .0 .0 207,401 381857,3 841851,2 .0 .0 207,401 381857,3 .0 207,401 381857,3 .0 207,401 381857,3 .0 207,401 381857,3 .0 207,401 381857,3 .0 207,401 381857,3 .0 207,401 381857,3 .0 207,401 381857,3 .0 207,401 381857,3 .0 207,401 381857,3 .0 207,401 .0 207,401 .0 207,401 .0 207,401 .0	A CONTRACTOR OF THE PARTY OF TH	144, 000	754323.5	1662998.7	22204774 •N	4991831 .8	. 0	ູ່ພ
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204.000 391857.3 841851.2 .0 .0 .0 .000 207.441 381857.3 841851.2 6399084.1 1261972.0 16.73 54 BEGIN MIN-H 207.441 381857.3 841851.2 5613531.1 1261972.0 14.73 48 208.000 371162.3 840310.2 5613531.1 1261972.0 14.73 48 208.000 371162.3 840310.2 5613531.1 1261972.0 15.12 49 208.000 371162.3 840310.2 5613531.1 1261972.0 15.12 49 208.000 371162.3 840310.2 5613531.1 1261972.0 15.12 49		700 * 007		2.1021.0	-		1114	00.
QRB.IGNITION 2014441 581857.3 841851.2 6399084.1 1436323.3 16.73 54 BEGIN MIN-H 2014441 381857.3 841851.2 5613531.1 1261972.0 14.73 48 208.000 371162.3 818272.8 5613531.1 1261972.0 15.12 49 272.000 361156.3 796235.4 5613531.1 1261972.0 15.54 50	* · · · · · · · · · · · · · · · · · · ·	204, 000	3187	841851.7	Ç,	Ç	20.	50°
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208.000. 381158.3 840310.2 5613531.1 1261972.0 14.73 48 216.000 371162.3 818272.8 4613531.1 1261972.0 15.12 49	REGIN MIN-	207.441	0 0	7 3	12521	1261972.0	16.73	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
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24.000 361166.3 796235.4 5613531.1 1269972.0 15.54 50 22.000 351170.3 774198.0 5613531.1 1281972.0 15.99 52		216.000	7116	818272.8	5613531.1	61972	15.12	یا ا
22, NOTE 251170, 3 774198, N 5612531, 1 1251972, N 15,99 52		224,000	61168	96235		61 972	15.54	e.
		232.000	51170	0017	612571	64013		•

Table C-2. Trajectory Tables for the Mission with an Inclination of $55\,^\circ$ and a Cargo of 11,339.807 kg (25,000 lbs)

(Continued)

MOCZHCR ISSAU FUFL 3064K+524K (25K PAYLOAD)

	ينا سر 1-	0 V V W	WEIGHT	T HRUS	1.5	LONGIT. A	LONGIT. ACCELERATION
	SFC	አርን	581	Z	LAS	M/(SEC)S0	FT/(SEC)SQ
	•	1	() () () () () () () () () ()				
	244, 1100	5 5 1 1 7.8 5	7 5011 2 5	561555141	1261972		19,50
	256.606	321192.3	7681185.8	5613531.1	1261972 •D	17.48	57 ,34
	254,000	311196.3	535048.4	5613531 • 1	1251972 • 0	18.04	59.18
	272,000	301190.3	66 4111 . N.	5E13534 #1	1261972.0	18.64	61,15
	240,000	291124.3	541973.F	5613531 • 1	1261972.0	19.28	63.25
	288. FUH.	281198,3	619936.2	5613531-1-	1261972 .D.	19.96	65.50
	796, 11/11	771202.3	59789A.A	5613531+1	1261972 .0	20.70	67,91
	304 . DRID	2612116.3	575861.4	5613531,1	1261972 • 0	21049	70.51
	31 7, 000	251210.3	553824.0	5513531+1	1261972-0	22 + 35	73 .31
	326.000	241214.3	531786.6	5613531.1	1251972.0	23.27	76.35
	328, 000	231218.3	2.6479118	5613531 *1	1261972 40	24.28	79.65
	336.000	221222.3	4977111.7	5613531+1	1251972.0	25.38	83.25
	344.090	711226.3	463674.4.	5613531 • 1	1261972 • 0	26.58	87,19
	352, [ifi]]	2111231.3	443636.91	5613531.1	1261972.0	27.90	91 .52
	360, 000	191238.6	421509*0	5613531 41	1261977.0	29 35	96 • 30
	368.000	181474.3	400082.4	53389E5.E	1200247.2	29.42	96 .52
	375,000	172211.8	37 3662 • 11	5066461.8	1138985.9	29.42	96,52
-	384.060	1E3477.2	368284.2	4807872.2	1080852.7	29.42	96.52.
	302.0011	1541193.2	341895.5	4552481.2	1025686.5	29.42	96 .52
	400.000	147166.11	22 4445 .4	4329614.9	973336 .1	29.42	96 .52
INJECTION	433,13F	144174.9	317851.2	4741618.3	953553.7	29.42	96 ,52
	4113.126	144174.9	317851.2	4741618.3	953553.7	29.42	96 252

Trajectory Tables for the Mission with an Inclination of 55° Table C-2,

Table C-2,		Trajectory Tables and a Cargo of	s for the Mis E 11,339.807	ission with an In 7 kg (25,000 lbs)	for the Mission with an Inclination 11,339.807 kg (25,000 lbs)	ot 55°
			(Continued)	(p		
***************************************	5 .	MDC/HCR I=55.0	FUEL 3064K+524K	24K (25K PAYLOAD)	10	
:	1 X Y	300111	1005	RADIUS	IUS	INCL
A R C C C SHEET COME A	SEC	Σ	₽- UL	Σ	L	DE G
LIFT-OFF	000.	5	ω •	6373318.44	20909837.2	28,3698
	000"	61.	(O) 1	6373318.44	20909837.2	28,3698
	# DOC 0	35.94	111.5 055.7	6373532435	2090394902	78 a 2 b 4 c 4 c 4 c 4 c 4 c 4 c 4 c 4 c 4 c 4
BEGIN TILI	8, D00	138,75	455.2	6373457437	20910293 • 0	28,3698
	429-64F	317.19	1040.6	6 1 3 6 3 5 . 8 1	20910878°E	28.3700
	16,000	572.75	1879.1	6373891 -31	20911716.7	28 . 3718
	20,000	908.50	2980.6	6374227.06	20912818.2	28.3791
E NO 1164	28-000	1427.69	0 - 12 5 4 0 - 12 5 5 4	6374646.12	211914192.2	28,3973
	28,000	1833.50		6175151 .81	20915852.2	28.4384
the second section to the second section of the section of the second section of the section of the second section of the secti	-32.P00-	2428.81	7968.5	6375746.94	20917804.7	28.5194
	36.000	3116.19	10223.7	6376434 • 00	2092005 9.0	28.6625
•	4D.040	3897,19	12786.0	6377214.67	20922620.0	28.8931
	44,000	4777 .51	15657.8	6378089.31	20925489.7	29 2352
,	47.000 57.000	6799.12	72333.5	6380113.25	20822130	30.3054
. , et de passe pare à que te present démodratique des pares en élabor	- 56.000	7937.81	25042.7	6381251.75	20935865.2	31,00279
	60,000	9152,56	30028.1	6382465 + 116	20939945 ° 3	31.8647
FR-KMS.	62.660	100000	32808.4	6383311.44	20942622 .7	32.4853
•	54.000 1000	10439-12	34249.1	6383/49°94	70944U61 - 7	52 - 85 16 5 77 - 85 7 5
MAXT W C	58, 202	11967.06	33933.00	6385175 475	20048739.2	33 49230
i	72. DDD	13224.62	43387.9	6386531 . UE	20953185.7	34,9957
14 KMC.	74.094	14000.06	45932.0	6387305 .06	20955725•11	35 .6083
:	76 . NON	14722.62	48302.6	6388026.31	2.0958091	36.1752
	30, 000	16290.31	53445	389590 3	20953224 •0	37 .3 401
	84.000	17927.00	58815.6	E 591225. 75	7.0368581.	10.00.00
	48, 000	19630.94		30262305	20834158*2	39.7606
	- 97 - OAD	1399.5	711208.5	394587.3	20814845	40.8320
	95, 000	23229.69	75212.3	6395512.19	20385952 2	263
	100,000	27.11.7.44	98775	400328.4	7, 52, 1, 10, 2,	ů M
	308.000	29048.62	95303.9	6402311.06	21004957.5	4.782

Table C-2. Trajectory Tables for the Mission with an Inclination of 55°

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TIPE RADIUS FT P RADIUS FT SFC N 3115.00 10477.1 6406401.32 21011876.0 117.00 3315.7 114770.7 6406401.32 21013376.2 117.00 3315.7 114770.7 6406401.32 21022258.7 17.00 3315.7 115693.1 6406401.32 21022258.7 17.00 3315.7 12705.3 6418376.5 21032258.7 17.00 3315.7 12705.3 6418377.4 2104615.2 17.00 41746.3 1596.6 6417334.1 2104615.2 17.00 4306.2 1596.6 6417334.1 2104615.2 17.00 4306.2 1596.6 6414937.4 2104415.2 18.00 4406.7 1596.6 6414937.4 2104415.2 18.00 4406.7 1734.6 1734.7 1734.7 18.00 4406.7 1734.7 1734.7 1734.7 18.00 4406.7 1734.7 1734.7 1734.7		r	DC/HCR I=5€.	FÜEL		(Q:	
117. Properties		te: %. }= ₽=	ALT.		O A S:	SnI	INCL
112, FPH 3182, E2 101977, 6406401, 12 21011509.0 115, FPH 15, FPH 1553.7 11563.1 6406401, 12 21018375.2 12563.2 11563.1 6406401, 12 21018375.2 127, FPH 1		SFC			ž	# #	DEG
16, 000 33155.75 103778.7 6406401.12 21018376.2 170, 000 33155.75 103708.5 6406401.12 2103236.2 170, 000 37401.50 172705.5 6410625.67 21032236.2 170, 000 37401.50 172705.5 6410625.67 21032236.2 170, 000 41745.19 173705.5 64106775.67 21032236.2 170, 000 6470.70 173105.8 17		112,606	31087.62	161977.1	6404336.94	21011604.0	45.5846
170,000 35263,25 115663,1 6408498.94 21035286.2 1124,000 37400.50 122705,1 6410576.50 21035286.2 1224,000 37400.50 125705,1 6410576.50 21035286.2 132,000 41746.19 135926.5 6414947.44 21046415.2 132,000 41746.19 135926.5 6414947.44 21046415.2 140,000 46155.94 140,000 165444.9 64121528.87 21061795.8 140,000 54770.62 158696.7 6421577.94 21061795.8 157,000 155444.9 6421577.94 2107525.8 156,000 54550.8 184,311.9 643077.8 1209942.3 154,000 54550.8 184,000 53399.62 209000.7 64386.62 2110358.2 176,000 53399.62 209000.7 64386.8 21103387.2 176,000 53399.62 209000.7 64386.8 21103387.2 176,000 53399.62 209000.7 64386.8 21103387.2 176,000 53399.62 221070.0 6440577.65 21103387.2 184,000 7427.8 22736.3 644277.6 2112378.8		116.000	33155.75	1113778.7	6406401 -12	21018375.2	46.3230
128, 001 41746,19		120.000	35263,25	115693.1	6478498°94	21025258.7	47.0017
132,		128,000	39562.87	129799.5	5412276.50 5412776.50	210322362	48.1986
136, FMD 43946,25 144180,6 6417134,12 21053589,5 140, 1010 46155,34 151473,5 6419316,50 21061795,5 140, 1010 46155,34 15497,5 6419310,50 21061795,5 140, FMD 57778,19 173156,8 6425072,87 21075203,0 152, FMD 57778,19 173156,8 6425072,87 21075203,0 154, MM 59445,31 194375,0 6432073,81 2108469,0 154, MM 59445,31 194375,0 6432073,81 2108469,0 154, MM 59445,31 194375,0 6432073,81 2108387,2 172, CMJ 65417,51 221070,0 6432073,81 2103387,2 176, FMD 65417,51 221070,0 644221,62 21110192,2 176, FMD 65417,51 221070,0 644221,62 21110192,2 176, FMD 65417,51 221070,0 644221,62 21110192,2 177, CMJ 63338,62 220000,7 644281,306 21110192,2 177, CMJ 63338,62 220000,7 644281,306 21110192,2 177, CMJ 63338,62 220000,7 644281,306 21110192,2 177, CMJ 77077,31 27072,4 27072,5 27072,5 27072,4 27072,5 27072,		132,000	41746.19	135962.5	6414947.44	21046415.2	48.725.8
140, 1111 46156,34 151433,5 6419330,50 21060795,5 144, 1711 46156,34 15143,5 642152,87 21060795,5 154, 1710 5778,19 173156,8 6423721,39 21075203,0 156, 1710 5778,19 173156,8 6423721,39 2107523,2 156, 1710 5495,06 180311,3 6423721,39 21078258,2 156, 1710 57716,8 180311,3 6432312,5 21089463,0 154, 1710 53738,6 203000,7 6434386,6 2110192,2 176, 1711 65413,5 211010,7 6434386,6 21110192,2 176, 1711 65413,5 211010,7 6434386,6 21123780,7 176, 1711 65413,5 211010,7 6448213,0 21123780,7 188, 1710 67382,1 221070,0 6440357,2 21123780,7 188, 1710 7727,8 221070,0 6440357,2 21153526,0 197, 441 7727,8 22170,2 6448270,1 21153526,0 197, 441 75343,8 247191,0 6448270,1 21153512,0 270, 441 75343,8 247191,0 6448270,1 21167958,2 271, 441 79211,1 259879,2 6451993,6 21167958,2 271, 441 79211,1 259879,2 6451993,6 21167958,2 271, 441 79211,1 259879,2 6451993,6 21167958,2 271, 441 79211,1 259879,2 6451993,6 21167958,2 271, 441 79211,1 259879,2 6451993,6 21167958,2 271, 441 79211,1 259879,2 6451993,6 21167958,2 271, 441 79211,1 259879,2 6451993,6 21167958,2 271, 441 79211,1 259879,2 6451993,6 21167958,2 271, 441 79211,1 259879,2 6451993,6 21167958,2 271, 441 79211,1 259879,2 6451993,6 21167958,2 271, 441 79211,1 259879,2 6451993,6 21167958,2 271, 441 79211,1 259879,2 6451993,6 21167958,2 271, 441 79211,1 259879,2 6451993,6 21167958,2 271, 441 79211,1 259879,2 6451993,6 21167958,2 271, 441 79211,1 259879,2 6451993,6 21167958,2 271, 441 79211,1 211679,3 21167958,2 271, 441 79211,1 211679,3 21167958,2 271, 441 79211,1 211679,3 211679,3 211679,3 211679,3 211679,3 211679,3 211679,3 211679,3 211679,3 211679,3 211679,3 211679,3 211679,3 2116		136.606	43946.25	144180.6	E417134.12.	21053589.5	49.2097
144, FP 1487 1586		140, 1100	46155.34	151433.5	6419330.50	21060795.5	49.6455
149, Moil 50580, All 165944,9 6423721,94 21075203,0 152,606 57728,19 173156,8 6425972,87 21082358,2 156,000 57116,8 194376,0 64302073,8 21089453,5 156,000 57116,8 194376,0 64302073,8 21089453,5 158,000 53393,62 201200,7 643036,62 21103387,2 176,000 53393,62 201000,7 643036,62 21103387,2 176,000 53393,62 201000,7 6430356,62 21103387,2 176,000 53393,62 211070,0 6440357,25 21123402,2 188,000 72310,9 227365,5 6440357,25 21123780,7 184,000 72976,5 23486,5 644089,8 2114202,5 192,000 72976,5 23424,2 644089,8 2115359,5 197,441 75343,8 245170,2 6446200,12 2115356,0 197,441 75343,8 247191,0 6448200,12 2115351,0 270,441 7343,8 247191,0 6448200,12 21167958,7 270,441 79211,19 259879,2 6451993,69 21167958,7 271,441 79211,19 259879,2 6451993,69 21167958,7 271,441 79211,19 259879,2 6451993,69 21167958,7 271,441 79211,19 259879,2 6451993,69 21167958,7 271,441 79211,19 259879,2 6451993,69 21167958,7 271,441 79211,19 259879,2 6451993,69 21167958,7 271,441 79211,19 259879,2 6451993,69 21167958,7 271,441 79211,19 259879,2 6451993,69 21167958,7 271,441 79211,19 259879,2 6451993,69 21167958,7 271,441 79211,19 259879,2 6451993,69 21167958,7 271,441 79211,19 259879,2 6451993,69 21167958,7 271,441 79211,19 259879,2 6451993,69 21167958,7 271,441 79211,19 259879,2 6451993,69 21167958,7 271,441 79211,19 259879,2 6451993,69 21167958,7 271,441 79211,19 259879,2 6451993,69 21167958,7 271,441 79211,19 259879,2 6451993,69 21167958,7 271,441 79211,19 259879,2 6451993,69 21167958,7 271,441 2		144.668	483711.62	158696.7	6#21528.87	21058008.0	50.0382
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FO. 000 STITE.81 197391.1 64302073.81 21096469.0 154.000 STITE.81 194376.0 6434381.25 21103387.2 158.000 STA9.62 201000.7 6434386.62 21103387.2 175.000 STA9.62 200000.7 6434386.62 2110392.2 175.000 STA9.62 220000.7 64340257.25 2110392.2 221070.0 6436257.25 21123402.2 221070.0 227365.3 6442250.56 21123780.7 227365.9 6442250.56 21123780.7 227365.9 227365.3 6442250.26 211470.2 21147		155 690	7//8"12	18131.9	6423055.87	71089653.5	21. / Jou
154,000 53245.81 194376.0 6432312.50 21103387.2 158,000 53398.62 203000.7 6434386.62 2110192.2 175,000 53398.62 203000.7 643438.06 21103402.2 176,000 53398.62 21000.0 63399.62 2110192.2 180,000 63302.1 221070.0 6440357.25 21123402.2 180,000 71166.69 233486.5 6442560.5 21123780.7 182,000 71166.69 233486.5 6446089.81 21142026.7 182,000 72976.50 23446.2 6445872.06 21147874.0 195,000 72976.50 23444.2 6445872.06 21147874.0 197,441 75343.81 247191.0 6448200.12 2115356.0 197,441 75343.81 247191.0 6448200.12 21167958.2 200,000 75343.81 247191.0 6448200.12 21167958.2 201,441 7956.4 25987.2 6451993.69 21167958.2 201,441 79511.19 25987.2 <td></td> <td>150.000</td> <td>57115.81</td> <td>187391.1</td> <td>6430203.83</td> <td>21096469.0</td> <td>51.2785</td>		150.000	57115.81	187391.1	6430203.83	21096469.0	51.2785
168,000 63393,62 2010250,3 6434386,62 21110192,2 172,004 63393,62 203000,7 6438413,06 21116868,7 176,000 63382,12 2210471,2 64440357,25 21123402,2 180,000 637014,9 227365,3 6442357,25 21123780,7 188,000 71166,69 233486,5 6442357,25 21123780,7 188,000 71166,69 233486,5 6446287,26 21147874,0 192,000 72976,50 23424,2 64468870,06 21147874,0 197,441 7237,87 245170,2 6448200,12 21153512,0 197,441 7343,81 247191,0 6448200,12 21153512,0 200,000 77,441 7543,43 247191,0 6448200,12 21167958,2 200,000 77,441 796,44 25795,4 6450774,31 21167958,2 201,441 796,11,19 259879,2 6451993,69 21167958,2 201,441 79211,19 259879,2 6451993,69 21167958,7 2		154,000	59245 - 31	194376.0	6432312 450	21103387.2	51.45248
172,004		168,000	61341,25	201250.8	6434386.62	21110192 • 2	51,7513
176, NrN 65417.51 214611.2 6438413.06 21123402.2 190, Udb 67382.12 2271070.0 6440257.25 21123402.2 184, Nrb 69310.94 227365.3 64402567.56 21155992.5 188, Nrb 7166.69 233486.2 6440267.06 21147874.0 197, 441 75343.81 247191.0 6448200.12 21155526.0 197, 441 75343.81 247191.0 6448200.12 2115552.0 197, 441 75343.81 247191.0 6448200.12 21155512.0 277, 441 75343.81 247191.0 6448200.12 21155512.0 277, 441 75343.81 251675.9 644270.3 44 2115593.5 277, 441 79211.19 259879.2 6451993.69 21167958.2 277, 441 79211.19 259879.2 6451993.69 21167958.2 277, 441 79211.19 259879.2 6451993.69 21167958.2 277, 441 79211.19 259879.2 6451993.69 21167958.2 277, 441 79211.19 259879.2 6451993.69 21167958.2 277, 441 79211.19 259879.2 6451993.69 21167958.2 277, 441 79211.19 259879.2 6451993.69 21167958.2 277, 441 79211.19 259879.2 6451993.69 21167958.2 277, 441 79211.19 259879.2 6451993.69 21167958.2 277, 441 79211.19 259879.2 6451993.69 21167958.2 277, 441 79211.19 259879.2 6451993.69 21167958.2 277, 441 79211.10 259879.2 6451993.69 21167958.2 277, 441 79211.10 259879.2 6451993.69 21167958.2 277, 441 79211.10 259879.2 6452184.06 21167958.2 277, 441 27		172,004	63398,62	203000.7	64 76 421 -62	21116868.7	51 49602
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197,441 75343,81 247191.0 6448200.12 21155512.0 217,441 75343,81 247191.0 6448200.12 21155512.0 210,000 76410.00 2550575.9 6449743.44 21159935.0 217,441 7951.19 25987.2 6451993.69 21167958.2 217,441 79211.19 259879.2 6451993.69 21167958.2 218,441 79211.19 259879.2 6451993.69 21167958.2 218,441 79211.19 259879.2 6451993.69 21167958.2 218,441 79211.19 259879.2 6451993.69 21167958.2 218,441 2211.19 259879.2 6451993.69 21167958.2 218,441 244518.06 277290.3 6459788.12 21177126.2 2372.60 86755.00 284629.3 6459345.81 21192079.2		196, 000	74727.87	245170.2	6447594 .75	21153526.0	52 49317
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210.000.000 76906.90 250675.9 6449743.44 21158935.0 274.000 77966.94 255795.4 6450774.31 21163957.5 277.441 79211.19 259870.2 6451993.69 21167958.2 277.441 79211.19 259879.2 6451993.69 21167958.2 277.441 79211.19 259879.2 6451993.69 21167958.2 277.400 82777.6 264519.6 6452184.06 21168582.7 215.000 82777.126.2 211777126.2 211777126.2 211771	NO II PARCE	197, 441	75343.81	247191.0	5448200.412	21155512 .0	52.9780
2074,000 77966,44 255795,4 6450774,31 21163957,5 2073,41 79211,19 259879,2 6451993,69 21167958,2 259879,2 6451993,69 21167958,2 259879,2 6451993,69 21167958,2 2545,000 244,005,75 2167518,0 2168582,7 215,000 82777,000 277290,2 645713,56 21184955,5 237,600 86755,000 284629,3 6459345,81 21192079,2		200° POD	76406.00	250675.9	6449243.44	21158935.0	52.9777
2073,441 79211,19 259879,2 6451993,69 21167958,2 N 207,441 79211,19 259879,2 6451993,69 21167958,2 2073,441 79211,19 259879,2 6451993,69 21167958,2 203,411 79211,19 259879,2 6451993,69 21168582,7 215,471 84518,16 277291,2 6457173,56 21184952,5 237,411 84518,16 284629,3 6459345,81 21192079,2		294, AHA	77956.44	255795.4	6450774-31	21163957.5	52 497.73
N 207,441 79211.19 259879.2 6451993.69 21167958.2 2077.441 79211.19 259879.2 6451993.69 21167958.2 2078.401 79211.19 259879.2 6451993.69 21167958.2 2016.10.10.10.10.10.10.10.10.10.10.10.10.10.		207.441	79211.19	259870 ° 2	6451993.69	21167958 .2	52,9769
2073-441 79211,19 259879,2 6451993,69 21167958,7 2019,7441 79405,75 261517,6 6452184,06 21168582,7 215,610,1 82171,712,52 6457173,55 21184957,5 2377,713,55 21184957,5 2377,713,55 21184957,5 2377,713,55 21184957,5 2118457,5 21184957,5 2118457,5 21184957,5 2118457,5 21184957,5 21184957,5 21184957,5 21184957,5 21184957,5 21184957,5 21184957,5 21184957,5 21184957,5 21184957,5 21184957,5 21184957,5 21184957,5 21184957,5 2118457,5 21184957,5 2118457,5 2118457,5 2118457,5 2118457,5 2118457,5 2118457,5 2118457,5 2118457	NO ILLON	207,441	79211.19	259879.2	6451993469	21167958.2	52 .9769
79405.75 26U517.6 6452184.06. 21168582.7 82N7N.DE 26925P.7 6454788.12 21177126.2 84518.NG 277290.2 6457173.56 21184952.5 86755.DH 284629.3 6459345.81 21192079.2	EGIN MIN-H	207.441	79211.19	259879.2	6451993.69	21167958.2	F2.9769
82N7N.D.DE 25975P.7 6454788.12 21177126.2 84518.NS 27729D.2 6457173.56 21184957.5 86755.DH 284629.3 6459345.81 21192D79.2		208, 000	79405.75	260517.6	6452184 406	21168582.7	52.9856
84518,N6 277290,2 6457173,56 21184957,5 5 86755,DW 284629,3 6459345,81 21192079,2 5		215.000	82N7N.DE	26925P.7	6454788.12	21177126 . 2	53,1079
86755.014 284629.3 6459345.81 21192079.2 5		224, 600	3	277290.2	6457173456	21184957.5	53 42 25/9
		000	10 11700			0 0000	

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Table G-2.		ectory Tabl nd a Cargo	les for the] of 11,339.8	Trajectory Tables for the Mission with an Inclination of 55 and a Cargo of 11,339.807 kg (25,000 lbs)	an Inclinati 1bs)	on of 55
į			(Continued)	ed)		
	3 2:	IDC/HCR I=55.	0 FUEL 3064K+5	MDC/HCR I=55.0 FUEL 3064K+524K (25K PAYLOAD)	0)	
	to the above the control of the cont			,		;
	TIME SEC	P. T.	ALTITUOE FT	∑. Σ.	RAUJUS FT	INCL DEG
e. Is an expression comments of the paper constraint and the constraint of	248.000	90619.00	297305.4	6463073.31	21204308.5	53 53 53 53 53 53 53 53 53 53 53 53 53 5
	256.000	92258.87	302686.6	6464641.25	21209452.7	53.6580
	254, 000	93713.00	307457.3	6966020.87	21213979.0	53 .756
	272.000	94988.87	311643.3	6467219.62	21217912.0	53.8520
	280, 000	95034 \$56	315270.9	6468745 444	21221277.5	53 .9446
	-2-8-B. BPG	97/138.87	318369.0	6469106.94	21224104.0	54.0338
	296, 000	97830.87	320967.4	6469813.19.	21226421 00	54 .1199
	304.000	98480.87	32.3160.0	6470374.37	21228262.2	54 . 2032
	312, 000	98499.81	324802+5	6470801 -19	21229662.5	F4 .2838
	320.080	99399.56	326117.8	6471105.44	21230660.7	54.3617
	324, 000	99692 . 31	327075.2	6471299.87	21231299.7	54 4 370
	-33F. HRB .	. 99894.12	- 327736 F	6471398.62	21231622 .7	54.5100
	344, 000	100018.75	328145.5	5471416.87	21231682 45	54 .5806
	352.060	100083,75	328358.8	6471371.62	21231534.0	T4 . 649
	350, 000	100107.87	328437 .9	6471281 .25	21231237 45	54 47152
	368.000	100110.37	328446.1	6471164.94	21230856.0	54.7779
	375,000	100107.37	328436.3	6471038-81	21230442.2	54 .8357
	3 9 4 e () () ()	100114.50	328459.6	6470918.56	21230047.5	54.8888
	392, 000	100149.31	328573.9	6470821 . 49	21229729.7	54.9379
	4 00 000	100230.81	328841.2	6470767.31	21229551 .5	E4 . 9832
INJECTION	403, 136	100279.87	329002.2	6470752 •00	21229534 an	55 .000
	403,136	100279.87	329007.2	6470762.00	21229534 .0	E 5 . U0 UU

Table C-2. Trajectory Tables for the Mission with an Inclination of 55° and a Cargo of 11,339.807 kg (25,000 lbs)

(Continued)

MUCCHER ISSAN FUEL BREWK+524K 125K PAYLOAD)

		:	3	i, 0 1 1			ų.
	N I R	T Q S	**************************************	PRESSURE LB/(FT)SQ	0EG	Z	SBT
1 1 5 7 - 0 5 5	900 .	.0000	.000		99.665	56479.958	12697.199
	. nau	anna.	ນຸດປ•	ານຜ•	99.665	56479.958	12697 0199
	4.03a	1600.	175.237	3.660	- 1009	16452 4431	3698-654
DEGIN TIL	8.000 8.000	.1519	727.310	15.190 15.190	018	65279 934	14675 513
	12.0MB	.1567	1685,302	35.198	670	143950.293	32361 .312.
	15, 000	.2143	31162,411	63.960	614	247590 4584	55660 .576
	26.000	.2752	. 4855°231	101.404	301	369134.875	82984 .819
ENG ITEI	100 °C2	22160	4855.231	101 . 404	301	359134 875	82984 819
	74. FITT	*3396	7041.098	147.056	.000	499386.707	112266 4595
	7 p. [10]	2885	9572.481	21)0.051	U00•	633058-133	142317 • 127
	32. fillifi	.4812	12384.782	258.975	000.	813632.906	182911 4949
	36, คำแ	* 5593	15414.465	321.938	enno.	1030788.141	231730 • 387
	40.600	. 643u	18512 . 662	386 645	00U°	1329924 859	298978 996
	ម្នេក ពិភាព	-7327	21551.173	450.106	000.	1729047.781	388705 395
	48. Filil:	.8286	24358.838	508,745	000.	2450811,344	550964 297
	52.400	. 9299	26710.183	558.042	. 1100	3334687.781	749667 617
manus:	56 • Onu	1.0373	28509.606	595,436	,000	4288688.937	96 41 35 602
	50,046	1.1534	29755.734	621.463	000.	4587955.250	1031413,344
JR KMS.	62.6611	1.2384	311360.855	634,100	, u00	4520601.375	1016271 594
	ម្នាល់ មាន	1.2341)	30594.441	638,978	יטטי.	4472190.875	1005388.484
	58. HDF	1.4314	309FD . 9U3	646.632	000.	4257285.687	957075 #875
NON LX VIII		7.03.07	30751.775	646.650		2010111 500	2338348332
2	75. 096		31126.4332	700-002	ייים.	3595597.875	A31050 .719
	76.600	1.7663	29471,250	615,520	າດດ•	3471572.750	780440 ,578
	ลา. กลูก	1.9439	27480.1184	574.101	000	2950800 .531	663366,336
	aq.DA	2.1130	24681 .552	515.485	000.	2479463.187	557405 484
	90, 11/111	7.7844	21310.595	455.691	.000	2073047.719	466039,556
	92.1466	2.4657	19149.516	399.946	000.	1709116.031	384224 0559
	96,000	2.6591	16709.761	348.970	.000	1388622 4172	312174 676
	100.001	2,9663	14509.607	3013.027	, DDD	1110301.734	249605,754
	104.030	3.0879	12541.504	261.935	,000	387704 .555	199553,918
	108.000	3,3161	10754,018	224.602.	000.	719469.070	161743.078

Trajectory Tables for the Mission with an Inclination of 55° and a Cargo of 11,339.807 kg (25,000 lbs) Table C-2.

(Continued)
MDC/HCR I=55.N FUEL 3CE4K+524K (25K PAYLOAD)

	TIME	MACH	DYN. P	PRESCURE	ALFP	DRAG	
	SEC		ON (M) /N	LB/(FT)50	DEG	Z	LBS
the second secon	200	2 54711	122 7210	196 927	Ü	236.00.766	800 H37801
	111.000		100 1000	101 303	000		102397-52501
	120,000	4.0764	5509.707	135.958	GHG.	357860.445	30450 -227
	124,000	9.2742	5470.987	114 . 262	000.	285263 .023	64129.677
	128,000	4.5283	4594.418	95,956	יים מי	22F222,34D	50856 .804
	132, 040	4.7908	3867,256	80,655	000.	178588.275	40148.240
	136.000	5.0638	3253.874	67,959	000	141419.895	31882,380
	140° 000	5.3446	2743.972	57 • 309	ບຸດດ•	116410 .322	26170 .081
	144.000	5.F389	2319.434	244.84	. nno	95578,1148	21486 .799
	148,000	5.9808	1984.831	41.454	, nan	78984 .729	17756 413
	152,000	F. 3534	1760.981	35.526	. (100	F5068.834	14628.055
C in any or a serial and server	156,000	F.7459	1452,358	30.333	.000	532n1 -723	11960 4223
	160.000	7,1575	1235 . U76	25.795	0011.	47944 B74	98.70 .200
•	164, 000	7.5872	1045.850	21.843	000.	37212 *086	8365.610
	168,000	8.0337	881,757	18.416	. nno	31373,514	7053.046
	172, 000	8.4956	740.2110	15.459	.000	26336 .816	5 4 2 0 4 1 5 2
	176.000	8.9717	F18.837	12.925	.000	22018,665	4949.993
and the state of t	19-03-000	9.4589	515,460	10.766	000	18340.426	4123 • 092
	184.000	9.9571	428 .0116	8.939	. 000	15228.753	3423.560
	188, 000	10.4647	354.535	7.405	000-	12614 4616	2835 .878
	192.000	10.98117	793.227	6.124	100.	10433.204	2345.478
	196, 000	11.5047	742.388	5.062	00U•	8624 4373	1938.825
	197.441	11.6953	276.342	4.727	00u•	8053.419	1810.481
SEPARATION	197 441	11.6953	225 . 342	4.727	000.	000*	. UUU
	200° 000	11,7693	192.071	4.011	.000	000.	00 0°
	204, ควก	11.83114	150.248	3.138	.000	000*	ព្ធបា ា
	207.441	11.9719	123.064	2.570	000	םיח.	อีกเ
NOILINGI BOO	207,441	11.9719	123.064	2.570	000	000*	ຼ ຕຸກຕຸ
BEGIN MIN-H	207.441	11,9719	123.064	2.570	10.780	000.	000.
	203, 000	.000	. 100	• וועט	10.777	•000°	nno"
	216.000	. იიიი	ู่ เมม	ປິນນ.	10.717	000.	ם בע"
	224,000	. មិលិវាភ	. 000		10.620	000.	0n0.
	2 3 2 • 0 0 0	unun.	Hgu.	iuu.	10.48R	ຶ່ນປຸ	יים יי
	240,000	.0000	uun.	unu.	10.321	000.	, 0 i i

Table C-2. Trajectory Tables for the Mission with an Inclination of $55\,^\circ$ and a Cargo of 11,339.807 kg (25,000 lbs)

			(Con	(Continued)		н 8	1761
	5	357468 I=5	400/408 I=55,0 FUFL 3064K+524K (75K	4 K+524K (75	K PAYLOAD)		CASE 1
						TARLE	LE NO. 4
	1 1 M F 5 E C	H U E	NYN PRE	PRESSURE L37 (F1)S0	ALFP DEG	N N N N	L B S
	יירט פאַכ		5	900	10.123	G G G	unu.
	256, 1466.	THE STATE OF	000	.000	208.0	ינונון.	
	254, 010	1000	um.	000.	9,63	000.	•000
	272. HPf:	nang.	anu.	. ທຸກ	9,349	000°	000°
	200,036	. 4000	and.	000.	9.038	000.	.000
	788. FHL	tunu.	. IIII.	ກ່ອນ.	8.702	. 000	• 0000
	295.030	. dinnil	הווח.	ouu.	8.344	.000	000°
	3 file 11: Fift	. filifil	anu.	. 11110	7.963	• 000	000°
	312, 1100	.Adeu	. JOH	บบก	.7.563	•000	000°
	320.0FW	. num	gilu.	. 000	7.144	000.	000°
	174.075	. Cund	EET.	ייים.	6.708	.000	.000
	3 36 . lififi	. նունը	900.	,00¢	6.255	• 000	000.
	11 jili * † 12 z	nuu.	m(m).	.0nn	5.787	000*	000°
	352 . Liftle	· milli	000.	ານນ*	5.305	.000	000
	350,000	. 4000	. Dud	.000	4.811	oun.	000.
	368.600	agay.	30A*	nou.	4.309	. 000	000°
	375,000	dinni.	011.	1000	3.806	.000	.000
	384. FEE	ognij.	000.	າມດ.	3,301	000.	.000
	197.1111	. Ոսկա	Din.	Jug.	197.5	•000	000°
	4 PIP. GITH.	. Unbut	U011.	ງພູ.	2.286	000.	.000°
INJECTION	40.70	oeme.	Dinti.	. 11110	7.097	000	000°
	4113.136	Jung.	300.	. nru	2 a D 8 7	010*	000.

Trajectory Tables for the Mission with an Inclination of 55° and a Cargo of 11,339.807 kg (25,000 lbs) Table C-2.

			(Continued)	nued)			
	E	MDC/HCR I=55	.O FUEL	3064K+524K (25K	PAYLOAD)		
			·				
!	H I	2°20	LATITUDE	LONGITUDE	CHIP	CHIY	CHIR
	A F C	o E G	950	DEG	DEG	056	nE G
I I F T - OF F	000	90.000	29.370	-80.635		.000	37,977
	000*	900.06	တ	-80.635	.nnu.	000.	37.977
	, noo.	89.993	190	-80.635	600*-	-012	77.977
TILL BLODO	30°1° 6	386.98	28.370	- BU. 7.55	8 C C - 1	500,	716318
BEGIN IILI	- 12. PPI:	96.268	8 37	-80.635	-1-397	.000	. ~
	16, 000	89.656	ď	-8D.635	-2.794	000.	37.977
And the second s	20.000	89.752	8	-80.635	-4.191	000	۷,
END TILT	20, 000	89.252	·co		- 4 - 1 9 1	000.	- 1
	24.000	88,707	28.370	-80,635	- 5.617	000.	37.977
	23.000	205.18	20 221	- 911 - 6 3 5	1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	000	
	35.000	85.752	28.372	-80.633	-12,255	000.	. ~
	40.000	84.304	28.374	-80.632	-14.839	000*	37.977
	14,000	87.650	28.376	~80.631	-17.555	.000	37.977
	48.000	80.830	α	-80,629	-20.373	• 000	37.977
	52,000	78.900	28.381	- 30.626	-23 27 2	000.	37.977
an a managem und	- 56.000	76.910	28.385	-80.673	- 76 - 287	000.	116.15
	60° 030	74 . 384	28 289	130,4619	752.62-	000	77.0.77
JIII AM Se	1000.00	72.814	78.395	-80.614	-32 289	000,	37.977
:	58.000	70.724	28.401	- 80 . ED.	-35.317	000.	37.977
O WAXIMUS	68, 202	70.619		-80°en8	-35.458	•000	37.977
and a committee of the same of	72.000.	68.647	28.409	-80.602	-38.304	000.	37.977
14 KMC.	74.094	67.573	œ,	-80.598	-39.842	000.	37.977
	76 . 00u	66,608	28.418	-80.594	-41.723	. Dan	37 .077
	4D, 000	64 .633	O.	1.9D . CIS.	-44.051	000.	37.977
	84.000	62,745	8 . 44	-80.575	- 46.769	000.	37 .977
	98 . 000	EO.967	8.45	- 90.563	-49.365	000.	37.977
The second secon	. 97 . DAD	. 59,308	œ	-80.550	51.83	000	37 .977
	96.000	57.775	78.485	- 80.535	54.17	000°	37.977
	100.000	6.36	8.50	-80.518	56.38	000"	37.977
	104, 000	55.078	8.52	- 30 - 500	159.469	000.	0
	108.000	53,905	28.549	-80.479	- 60.434	000.	37 .977

Trajectory Tables for the Mission with an Inclination of 55° Table C-2.

			.D FUEL 3064K+524K				
	₹.	MOCZHCR I=55.D		46.21 44.75.44.	PAYLOAD)		
	T WF	V • Z Ø	LATITUDE	Longitude	CHIP	CHIY	CHIR
	SEC	0 E G	DEG	9.40	0£6	DE G	DEG
	112.000	57.838	28.575	- 8 D . 4 E E	-67.283	000.	37.977
	115,000	51.868	28.603	-80.431	-64 and 4	000.	37.977
	124, Dad	50,187	2.00 . 0.0	- 90.374	-57.206	000.	37.97.7
	128.000	មុខ 459	28.704	- 201.341	-63.659	000	37.977
	132, 000	48.796	28.743	- 80 - 306	-70 029	•000	37.977
	136.000	48.194	28.785	-80.258	-71.320	000.	37.977
	140,000	47,558	28.931	-90.228	-72,539	000.	37.977
] 44. OCC	47.180	20.02	-80.184	-73.690	000.	116015
	152,1000	712.31	186.87	- 80.089	-75.831	000	37.077
	155,000	45.028	23.043	-80.037	-76.823	000*	37.977
	160.000	45.719	401.85	-79.982	-77.77	000.	37.977
	164, 1100	45.441	29.158	426°61-	-78.676	000.	37.977
	160.000	45,189	29.235	-79.867	- 79.543	000	37.077
	172, เกิน	796° 44	29.305	-19.199	-90.375	000"	37.977
	176.1000	44.757	29.378	222.01-	-81.173	000	37.977
	190,000	44.571	29.454	1 79 8583	-81 4940	000.	37.977
	194.000	500° 44	29.534	165.67	-82.E79	מבים י	37.911
	1000	75.70	114.7	a - C = O	193.531	ָם מסקים מסקים	7 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
		14 200	20 201	C 25 C C -	[42.48-		77.977
	107.441	43,051	# C & . o c	-79.322	-84.973	000	37.977
SEPARATION	197,441	43,951	18.62	-79.322	-84.973	000*	37.977
	200,000	43°98	29.882	-19.267	-85,385	000	37.977
	204,000	44.035	29.974	-79.182	-86,031	000*	37.977
	2117.441	611.44	30.052	-79.1N9	-86.587	000.	37.977
OPR IGNITION	207.441	620° 44	30.052	-79.109	-86.587	000.	37,977
H-NIW NIS	2013.441	644.079	30.052	-79.109	- 76.291	000.	37 . 977
	208. Anu	44.075	30*08	-79.097	-76.354	000"	37,977
	216.11/11	44.022	311.250	92	-77.265	" מסט	37.977
	224. ANA	43.978	311.442	œ	00	000.	37.977
	232.000	43,000	30 505	120 061	101	020	7

Trajectory Tables for the Mission with an Inclination of 55° Table C-2.

table 0-2.		a Cargo	11,	11,339,807 kg (2	339.807 kg (25,000 lbs))) }
			(Con	(Continued)			
	NO W	MOC/HCR I=55.0	FUEL	3064K+524K (25K	PAYLOAD)		
And the second s							
	TIME	AZ.5	LATITUDE	LONGITUDE	CHIP	CHIY	CHIR
	۸ ۳ ۲	930	DFG	05.6	DEG	DEG	0E G
The state of the s	249,000	206*£#	31.054	-79,156	-80.959	000.	37.977
	256.600	43°894	31.271	-77-945	-81.895	000.	77.977
	764, 000	43.496	31.495	-77.725	-82.836	000.	27.977
	272.000	43.907	31.726	50h*LL-	-87.781	000.	37 . 977
	290,000	43.928	31.954	-17.252	-84.732	.000	37.977
The same of the sa	- 2-88 - 000	43.959	32 . 210	-77,016	-85.687	000.	37.977
	296, 000	43.999	32.464	-76.759	- 86 • 646	00u•	37.977
	3.04 . 000	6 40 - 44	32 . 72€	- 76.493	-87.610	0 0 0°	37.977
	312, 000	44.110	37.995	-76.215	-88-577	000•	37.977
	320,000	4.18]	33.275	-75,925	-89.549	.000	37.977
	328, 000	44.263	33.562	-75-623	-90.524	•000	37,977
	336.000	44.357	33.859	-75,308	-91.503	000.	37.977
	344, 000	្ន ពិស្សពិទី	34-156	-74.979	-92 •4 85	•000	37.977
	352.000	44.58]	34.483	-74,635	- 93.471	. 000	37.977
	360°, 000	44.712	74.810	-74-275	-94-459	.000	37.977
	358.000	44 . 95.9	35.149	-73,899	-95.450	000.	37.977
	375, 000	45.024	35.493	-73,505	-96 443	•000	37.977
The same and the same same same same same same same sam	3.84 , 666	45,207	35,857	-73,094	-97.439	000.	37.977
	392,000	605-54	36.228	-72.665	-98 •4 3F	.000	37.977
	400.000	45.629	36 . 608	-72,217	- 99.436	000*	37.977
INJECTION	403,135	45.721	36.750	-72.035	-99.427	•000	37.977
	4N3.136	45,721	36.760	-72.036	-99.827	000.	37.977

Table C-2. Trajectory Tables for the Mission with an Inclination of 55° and a Cargo of 11,339.807 kg (25,000 lbs)

(Continued)

MOC/4CR T=55+0 FUFL 3864K+524K (25K PAYLOAD)

	11. 2 F	PANGE	RANGE ANG.	TOTAL ALPHA	IMP. LAT.	IMP. LONG.
	្តរ ម ប	χ Σ	. ภริด	DEG	DEG	DEG
1161-066	50.	900°	Bun.	000.	28.370	-80.635
	181.	ilan.	und.	.000	28.370	-80.635
	4 0HJ	min.	.n15	- •009	28.370	-80 4643
	00008	333.	6200	018	28.370	-80.637
BEGIN 111.1	ຄູ່ ແກກ		.079	018	28.370	-80.637
	12,000	. 002	ក្នុង : .	0.670	28.370	-80,636
	15,000	, dil 9	. N 5.9	614	28.370	-80 •636
	213,614.	. 0.27	47U.	301	28.370	-80.637
FND TILL	CHU .U.S	. 1127	47 CI.	301	28.370	-80 4537
	24.190	290.	680*	160.	28.371	-80,635
	23,000	.122	. 1114	.107	28.373	-80,633
	32.000	•214	.119	.122	28 . 375	-80.632
	35.000	945	134	. 1 3 tr	28.378	-80,629
	46.660	.537	.150	.147	28.388	-A0.621
	44.000	. 792	 	.158	28.400	-30,610
	48.1)(1.1	1,125	.183	.169	20 415	-80.597
	52,003	1.548	.200	.179	28.434	-80,581
to very many and decidingly	56.000	2.073	.18	.188	28 4 56	-80.561
	FN. 0110	7.718	386"	197	28.483	-40,537
10 KMS.	F7.EEF	3,203	6,749	202*	28.504	-80,519
	គ្នក ពាក្យ	3.473	.255	, 204	28.516	-80.509
	60,1.06	4.378	-275	.210	28.554	-80.475
MUM TXAM G	59,202	4.428	.276	.210	28.556	-30 473
******	72,600	5.441	156	.213	28.600	-80.435
14 KMS.	74°034	6.1166	.309	4214	28.626	-80.411
	76.11011	183*3	Ø'	*215	28.653	-90.387
	40, ANA	8.113	. 347	.216	28.714	-80.333
	84.[if]fi	9.759	* 35.8	.215	78.784	-80.270
	93, 000	11.636	10° 6° 7	.213	23.864	-80.198
	92.600	13.765	• 425	.210	28,954	-80,118
	0 E. 0140	16.152	9 B B B	202.	29.053	-80 •027
	Thu. DRF	18.844	6310	.703	29.163	-79.928
	144,000	21.830	\$25.	.199	29.283	-79.818
	16.9.066	25,135	₩85°	194	79.414	-79,698

Trajectory Tables for the Mission with an Inclination of 55° and a Cargo of 11,339.807 kg (25,000 lbs) Table C-2,

		MDC/HCR I=55.0) FUEL 3064K+524K	K (25K PAYLOAD)		
		grand the state of				
4	H M H	RANGE	RANGE ANG.	TOTAL ALPHA	IMP. LAT.	IMP. LONG.
1	D 3S	X			DEG	DFG
		:				
	112,000	28.175	, F.05	061.	29.554	-79.569
	1.16.000	35.766	674.	-185	29.706	-79-428
	120.000	77,123	969*	181.	29.868	-19.277
	124,000	41 . 861	6747	.175	30.041	-79,115
	128.000	46,995	.801	1170	30 . 225	-78.942
ALL SPANSES PROPERTY AND THE PROPERTY AN	1-32. 000	52,541	. 859.	.165	30.420	-78.757
	136.000	F8.513	026"	.16n	30.627	-78.560
	140,000	64 , 920	986"	*101 •	30.940	-78.355
	144.000	71,766.	1.055	.150	31,058	-78.144
	149.000	79.052	1.128	. 145	31.281	-77.926
	152.000	85.781	1.205	.142	31.508	-77.702
AND AND THE PROPERTY OF THE PROPERTY OF THE PARTY OF THE PARTY OF THE PARTY.	156, 000·	94 954	1.287	-137	31.440	-77 0473
	160.000	103.572	1.372	-133	31 .976	-77.238
The same of the sa	164.000	112.537	1.461	• 129	32,215	-76 . 3 3 7 -
	168.000	122 - 151	1.555	-125	32 .458	-76.751
	172,000	132.113	1.552	.121	32.703	-76 4 99
	176.000	142.526	1.753	.117	32.952	-76.243
	1-40, AUO	153,389	1.859	.113	33.204	-75.981
	184.000	164.704	1.969	.110	33.458	-75.713
	188,000	176.471	2.083	.106	33,715	-75.441
	192,000	188,691	2.201	.102	33 .975	-75.163
	196.000	201.364	2.323	.038	34 .237	-74 .879
	197.441	206.039	2,368	36U°	34 .333	-74.776
SE PARATION.	197,441	. 206.039	2,368	960.	34 4 3 3 3	-74 -776
	200.000	214.396	5 - 4 4 3	# D 0 #	34 .332	-74 .77E
;	204, 000	227.451	2.574	960*	34 - 332	911° hL-
	207.441	238,674	2.682	260*	34 . 3 32	-74.776
ORR. ISNITION	207.441	238.674	2.587	• 095	34.332	-74 .776
BEGIN MIN-H	207.441	278.674	2.682	11,854	34 .332	-74.776
	208, 0mg	2441.501	2.699	11.846	34.354	-74 .752
	216.000	267,091	2.955	11.727	34 .670	-74°411E
- The county of the same in the same of th	224,040	294.579	3-220	11.575	34 . 995	-74 。()44
	232.000	372,993	3.493	11.394	35 .332	-73.666
	500 040	352,364	3 2 7 7 4	11.187	75.001	070 561

Table C-2. Trajectory Tables for the Mission with an Inclination of $55\,^\circ$ and a Cargo of 11,339.807 kg (25,000 lbs)

(Continued)

40C/HCR I=55.0 FUFL 3054K+524K (75K PAYLOAD)

TIME	SNVO	FANGE ANG.	TOTAL ALPHA	IMP. LAT.	IMP. LONG.
ن <u>نا</u> ن	*	0.56	DEG	0.5.6	DEG
248,001	382 * 724	4 . 1165	1በ - 94 ፍ	38.042	-72.851
256,000	414,1115	4 3 3 5 5	10.580	36.418	-72.410
264,0113	446.554	4 6 7 H	10.389	36.810	-71 .943
272.000	1611.1184	ħ66* ħ	10.075	37 . 220	-71.446
280.000	514.781	5.323	9.738	37.551	-70.914
288.440	550,647	5.664	9.380	38 . 106	-7.04.342
295,000	587.742	6.015	3 . nn 2	38,589	-69.723
304.000	626,115	6.378	8.605	39.104	-69.046
312,000	665.820	F = 753	8.191	3.9 659	-68.298
320.000	706.914	7.141	7.760	40.2ED	-67.4963
128,000	749.456	7.541	7.316	40.922	-66 .515
336.000	793,513	7.955	6.858	41.662	65.416
344,000	339.158	3.334	F = 389	42.493	-64 - 126
35.2 . 000	886.467	128°8	5.910	43 479	-62.513
รัยด. ดมก	915.526	9.236	5.423	44.659	-60 445
368.600	986,414	6.762	4.936	46.111	-57.656
375.000	1079.151	10.254	4.50	47.937	-53 .664
384 . (ICI)	1693.737	10.763	3.984	50.384	-47.060
332,000	1150.173	11.249	7.526	53.758	-32 486
406.666	1208.460	11.831	3.087	4D.219	19.390
403.136	1231,818	12.048	2 - 92 3	40.219	-9.390
403,136	1231.811	1.7 n fig 8	2.923	40.219	19,390

Table C-2. Trajectory Tables for the Mission with an Inclination of 55° and a Cargo of 11,339.807 kg (25,000 lbs)

(Continued)

MOC/HCR I=55.0 FUEL 3064K+524K (25K PAYLOAD)

	TIME	AERN HEAT	AERO HEATING INDIC.	AL PHA	9 V H	DFS. NODE
	SEC	0 V I W) / W - N	18-F1/(F1)53	N*RAD	1.8 *056	DE G
LIFT-OFF	000.	G.	Ċ,	000*	000.	90.00
	000.	•	c.	000.	000.	00u° u6
	4.000	1998.0	130.1	027	L 12 2 -	90.031
1	9.000	31508.9	2186.5	+25.4	-2.887	90.063
BEGIN TILT	8,000	319ft 8.3	2186.5	- 224	-2.897	90.063
	12. PDG	168162.8	11522.8	-19.708	-253.849	90 •2 ED
	16,000	551586.5	37802.5	-32,803	-422 -519	90.790
	20.000	1 495384 8	95614.2	-25,492	-328,359	91 °F 57
END TILT	20,000	1395384.8	95614.2	-25,492	-328,759	91.657
	24.000	2991225.8	204964.1	11.187	144 . Do 8	92 .821
	24,000	5691159.2	399968.3	17.897	230.510	94 . 421
the second section of the second supplication of	32.086	9916658.6	679507.0	26.334	339,199	26 n° 96
	35, 000	16135971.9	1105665.3	36.332	467.978	99.037
	. 40.000	24840940.5	1702145.1	47.578	F12.833	1 02 .023
	44° 000	36504618.5	2501360.9	29,602	767 ,706	105 . 373
	48.000	51525621.5	3530626.5	71 . 795	924°169	108.967
	52, 000	70111518.0	4804164.9	83.404	11174 .798	112 4555
Andrew and the second s	56 000	92251711.6	6321250.1	236.50	1207,585	116.310
	50° DOO	117773918-0	7.970070P	102 • 392	1318 *870	119.870
JD KMS.	62.660	136574398.0	9358318.9	107.089	1379.375	122 - 183
	64, 000	146502076 • 0	10045433.0	109.080	1405 .019	123 - 329
	68.000	178686908.0	12243947.2	117.270	1458.986	126 •636
O MAXIMUM	58, 202	180386814.0	12350422.9	113,394	1460 4581	126 .798
	72.000	213728502.0	14645054.2	113,957	1467,834	129.746
JU KMV.	74, 094	233042500.0	15968483.5	112.738	1452 4130	131 .284
٠	76.000	251073844.0	17204022.7	110.652	1425.267	132 .628
	90,000	799743788.0	19853755.7	103.392	1331 0747	135 -268
	84.000	128517980.ft	22511632.0	0 h h 0 26	1190.680	137 659
	34, 000	366104000.0	25086092.2	811,983	1043 -105	139.799
	. 92 . NDE	402243672.0	27562446.5	70.168	903.802	141.703
	96, 000	436714188.0	29924425.7	60 -253	776 -098	143 • 389
í	100.000	4693618FD.D	321F15D3.D	51,359	661.531	144 .881
	104, 000	500081100.0	34255439.5	10 A 10 B	557 .114	00121

Table C-2. Trajectory Tables for the Mission with an Inclination of 55° and a Cargo of 11,339.807 kg (25,000 lbs)

(Continued)

MDC/HCR I=55.0 FUEL 30F4K+524K (25K PAYLOAD)

	TIMF	AERO HEA.	AERO HEATING INDIC.	AL PHA	HA G	DES. NODE
	S F C	N-M/ (M) SO	L.B-FT/(FT)Sa	N*RAD	LB*DEG	DEG
	112,11011	1. 308 200 21	7888585	3 U.S. U.S.	0 % t	148 395
	115, 990	579419400	39702840-0	24.938	321 .212	149.312
	120.000	60JM027En.u	41209178.5	20.457	2F3.498	150 . 128
	124. 000	621274360.0	42570316.0	16.770	215 .366	150 .859
	128.000	639172672.0	43707198.5	13.639	175.682	151 .514
	132,000	655263640.0	44899821 • M	11.124	143.282	152.104
	136.000	6F973BE32.0	45891125.N	9.083	116.998	152.635
	140,000	682772992*(1	46781384 .5	7.428	95 .671	153-106
	1944.1116	0.344635463	47579420.0	5.091	78.451	153,524
	148,000	73484384B	48237090.n	5.057	65 -1 40	153,898
	152. Mit	714329344.0	489471117.5	4.205	54.169	154 .234
	158, 000	722876952.0	49532805.0	3.484	44 .873	154.538
	160.600	730528528 1	SPHF7104.5	2.873	37.012	154。814
	164.000	737337056.0	50523636.5	2,359	30 • 385	155 . 064
	168 Hill	743257768.0	50036186.5	1.027	24.823	155.294
	172,000	748649216.0	51298766.11	1.565	20 - 177	155.505
	176.000	753777496.11	51015561.5	1.267	16.321	155.699
	193,030	757290088.0	51890854.0	1,020	13 . 1 4 1.	155 . 878
	1 84 . [1]	7611764360.11	52178917.A	.818	10.537	156 .045
	1 ទ.ឝ. ២៧៧	763756432.0	52333938.5	ង ម ម	8.419	156 4 199
	197.600	756324898.11	525h9934.N	.521	E.707	15F • 343
	195.000	769524792.0	52EED675.N	, t 1 t	5 • 3 3 3	156.477
	107.441	769236736.11	52709459.N	. 381	606° n	15F •523
SE PARAIION	197.441	769236736.0	52709459.0	.381	4 *909	156.523
	200.000	7711369752.11	52787095.0	.322	4.153	156 .523
	204.000	371811776.0	52385905.5	4251	3 .232	156 .523
	7117.441	772862780.A	52953810.5	• 205	2.E35	156 .522
ORR ISNITION	707, 441	772802784.0	52953810.5	-205	2 .635	156.522
BEGIN MIN-H	2117.441	772802784.6	52953810.5	25 . 4 Eft	327.941	156 .522
	238, 000	772802784.0	52953810.5	000*	000.	156 231
	216.000	772802794.0	52953810.5	000.	000.	156 «655
	224,000	772802784.0	52953810.5	000	000*	156.775
	2 3 2 . [!IDI!	7728112784.0	52953910.5	000.	, 000	156 891
	240.000	7723112754.0	52953810.5	000	.000.	157.004

Table C-2. Trajectory Tables for the Mission with an Inclination of $55\,^\circ$ and a Cargo of 11,339.807 kg (25,000 lbs)

#DC/HCR I=55.0 FUEL 3D64K+524K (25K PAYLOAD) AERO HEATING_INDIC. N-M/(M.) SQ LB-F1/(FT) SQ N*RAD 7728D2784.0 52953810.5 .000				(Continued)			
TIME AERO HEATING INDIC. AEC N-M/(M)SQ LB-F1/(F1)SQ N*\$AD AFA, DOT 772802784.0 52953910.5 244, DOD 772802784.0 52953910.5 272, RDG 772802784.0 52953910.5 272, RDG 772802784.0 52953910.5 272, RDG 772802784.0 52953910.5 274, RDG 772802784.0 52953910.5 272, RDG 772802784.0 52953910.5 272, RDG 772802784.0 52953910.5 372, RDG 772802784.0 52953910.5 4483, RDG 772802784.0 52953810.5 4480, RDG 77280	and the second s		0C/HCR 1=55.0 FI	UEL 3064K+524K (25	SK PAYLOAD)		
TIME AERO HEATING INDIC. ALPHA B ALPHA B AERO HEATING INDIC. ALPHA B AERO HEATING INDIC. ALPHA B ALPHA B ALL B							
\$\text{7EC}\$\tau \times \$(\mu) \text{\$		321	AERO HEA	TING INDIC.	Hd TV		DES. NODE
248,000 772802784,0 52953810.5 .000 256,000 772802784,0 52953810.5 .000 272,000 772802784,0 52953810.5 .000 272,000 772802784,0 52953810.5 .000 272,000 772802784,0 52953810.5 .000 272,000 772802784,0 52953810.5 .000 372,000 772802784,0 52953810.5 .000 372,000 772802784,0 52953810.5 .000 372,000 772802784,0 52953810.5 .000 372,000 772802784,0 52953810.5 .000 372,000 772802784,0 52953810.5 .000 372,000 772802784,0 52953810.5 .000 372,000 772802784,0 52953810.5 .000 372,000 772802784,0 52953810.5 .000 372,000 772802784,0 52953810.5 .000 372,000 772802784,0 52953810.5 .000 372,000 772802784,0 52953810.5 .000 372,000 772802784,0 52953810.5 .000		SEC	0 × (W) × W - N	LB-F1/(F1)50	N*RAD	18*056	DEG
256.000 772802784.0 52953810.5 .000 272.000 772802784.0 52953810.5 .000 272.000 772802784.0 52953810.5 .000 290.000 772802784.0 52953810.5 .000 372.000 772802784.0 52953810.5 .000 312.000 772802784.0 52953810.5 .000 312.000 772802784.0 52953810.5 .000 312.000 772802784.0 52953810.5 .000 312.000 772802784.0 52953810.5 .000 312.000 772802784.0 52953810.5 .000 312.000 772802784.0 52953810.5 .000 312.000 772802784.0 52953810.5 .000 312.000 772802784.0 52953810.5 .000 312.000 772802784.0 52953810.5 .000 312.000 772802784.0 52953810.5 .000 312.000 772802784.0 52953810.5 .000 312.000 772802784.0 52953810.5 .000 312.000 772802784.0 52953810.5 .000		248,000	772802784 .0	52953810.5	000.	.000	157.114
		256.000	772802784.0	52953810.5	000.	000.	157.221
272.000 772802784.0 52953810.5 .000 290.000 772802784.0 52953810.5 .000 296.000 772802784.0 52953810.5 .000 372.000 772802784.0 52953810.5 .000 372.000 772802784.0 52953810.5 .000 320.000 772802784.0 52953810.5 .000 320.000 772802784.0 52953810.5 .000 344.000 772802784.0 52953810.5 .000 350.010 772802784.0 52953810.5 .000 350.010 772802784.0 52953810.5 .000 372.000 772802784.0 52953810.5 .000 372.000 772802784.0 52953810.5 .000 372.000 772802784.0 52953810.5 .000 372.000 772802784.0 52953810.5 .000 372.000 772802784.0 52953810.5 .000		254,000	772802784.0	52953810.5	000*	000*	157 4324
290,000 772902784,0 52953810,5 .000 290,000 772802784,0 52953810,5 .000 3728,000 772802784,0 52953810,5 .000 372802784,0 52953810,5 .000 372802784,0 52953810,5 .000 372802784,0 52953810,5 .000 372802784,0 52953810,5 .000 372802784,0 52953810,5 .000 372802784,0 52953810,5 .000 372802784,0 52953810,5 .000 372802784,0 52953810,5 .000 372802784,0 52953810,5 .000 372802784,0 52953810,5 .000 372802784,0 52953810,5 .000 372802784,0 52953810,5 .000 372802784,0 52953810,5 .000		272.000	772802794.0	52953810.5	un.	000.	157.425
246.000 772802784.0 52953810.5 .000 246.00 772802784.0 52953810.5 .000 372.00 772802784.0 52953810.5 .000 320.00 772802784.0 52953810.5 .000 320.00 772802784.0 52953810.5 .000 372.00 772802784.0 52953810.5 .000 372.00 772802784.0 52953810.5 .000 350.00 772802784.0 52953810.5 .000 350.00 772802784.0 52953810.5 .000 372.00 772802784.0 52953810.5 .000 372.00 772802784.0 52953810.5 .000 372.00 772802784.0 52953810.5 .000 372.00 772802784.0 52953810.5 .000 372.00 772802784.0 52953810.5 .000 372.00 772802784.0 52953810.5 .000 372.00 772802784.0 52953810.5 .000 372.00 772802784.0 52953810.5 .000		240,000	772902784.0	52953810.5	.000	000.	157.524
296.000 772802784.0 52953810.5 .000 372.000 772802784.0 52953810.5 .000 372.000 772802784.0 52953810.5 .000 372.000 772802784.0 52953810.5 .000 344.000 772802784.0 52953810.5 .000 350.010 772802784.0 52953810.5 .000 350.010 772802784.0 52953810.5 .000 374.000 772802784.0 52953810.5 .000 372.000 772802784.0 52953810.5 .000 372.000 772802784.0 52953810.5 .000 372.000 772802784.0 52953810.5 .000 372.000 772802784.0 52953810.5 .000 372.000 772802784.0 52953810.5 .000		288.000	- 772802784 . C	52953810.5	000.	000.	157.620
312,000 772802784.0 52953810.5 .000 320,000 772802784.0 52953810.5 .000 320,000 772802784.0 52953810.5 .000 344,000 772802784.0 52953810.5 .000 350,000 772802784.0 52953810.5 .000 350,000 772802784.0 52953810.5 .000 350,000 772802784.0 52953810.5 .000 350,000 772802784.0 52953810.5 .000 350,000 772802784.0 52953810.5 .000 350,000 772802784.0 52953810.5 .000 350,000 772802784.0 52953810.5 .000 350,000 772802784.0 52953810.5 .000		296. กกัก	772802784.0	52953810.5	. 000	"טַסָטַ"	157.713
312, 000 772802784,0 52953810,5 .0000 320, 040 772802784,0 52953810,5 .0000 338, 000 772802784,0 52953810,5 .0000 344,000 772802784,0 52953810,5 .0000 352, 000 772802784,0 52953810,5 .0000 372, 000 772802784,0 52953810,5 .0000 372, 000 772802784,0 52953810,5 .0000 372, 000 772802784,0 52953810,5 .0000 372, 000 772802784,0 52953810,5 .0000 372, 000 772802784,0 52953810,5 .0000		304 • 000	772802784.0	52953810.5	ouu.	000°	157.8865
320.000 772802784.0 52953810.5 .000 378.000 772802784.0 52953810.5 .000 34.000 772802784.0 52953810.5 .000 350.010 772802784.0 52953810.5 .000 350.010 772802784.0 52953810.5 .000 372.000 772802784.0 52953810.5 .000 372.000 772802784.0 52953810.5 .000 372.000 772802784.0 52953810.5 .000 372.000 772802784.0 52953810.5 .000 372.000 772802784.0 52953810.5 .000		312, 000	772802794.0	52953310.5	000.	000.	157 • 894
358,000 772802784.0 52953810.5 .000 344,000 772802784.0 52953810.5 .000 350,000 772802784.0 52953810.5 .000 350,000 772802784.0 52953810.5 .000 376,000 772802784.0 52953810.5 .000 376,000 772802784.0 52953810.5 .000 376,000 772802784.0 52953810.5 .000 376,000 772802784.0 52953810.5 .000		320.000	772802784 . 0	52953810.5	000.	000.	157,381
344,000 772802784.0 52953810.5 .000 3529.8810.5 .000 772802784.0 52953810.5 .000 .000 772802784.0 52953810.5 .000 .000 772802784.0 52953810.5 .000 772802784.0 52953810.5 .000 772802784.0 52953810.5 .000 772802784.0 52953810.5 .000 772802784.0 52953810.5 .000 772802784.0 52953810.5 .000 .000 772802784.0 52953810.5 .000 .000 772802784.0 52953810.5 .000 .000 .000 772802784.0 52953810.5 .000 .000 .000 .000 .000 .000 .000		324, 000	772802784.0	52953810.5	.000	.000	158.067
344,000 772802784.0 52953810.5 .000 350,010 772802784.0 52953810.5 .000 350,010 772802784.0 52953810.5 .000 372,000 772802784.0 52953810.5 .000 392,000 772802784.0 52953810.5 .000 400,000 772802784.0 52953810.5 .000		336° HAH	772802784*B	52953810.5	ี มนม•	000.	158 . 150
350,010 772802784.0 52953810.5 .000 350,010 772802784.0 52953810.5 .000 372,000 772802784.0 52953810.5 .000 392,000 772802784.0 52953810.5 .000 400,000 772802784.0 52953810.5 .000		344,000	772802784.0	52953810.5	UnO•	000•	158.232
350,010 772802784.0 52953810.5 .000 358,000 772802784.0 52953810.5 .000 772802784.0 52953810.5 .000 392,000 772802784.0 52953810.5 .000 400,000 772802784.0 52953810.5 .000 403,135 772802784.0 52953810.5 .000		3.52 a B FI II	772802784.0	52953810.5	0 U U	000	158 312
358,000 772802784.0 52953810.5 .000 375,000 772802784.0 52953810.5 .000 392,000 772802784.0 52953810.5 .000 400,000 772802784.0 52953810.5 .000 .05,000 772802784.0 52953810.5 .000		350,010	772802784.0	52953810.5	ແບນ•	000	158 • 391
376,000 772802784.0 52953810.5 .000 .000 .000 .000 .000 .000 .000		368.000	772802784.0	52953810.5	onu.	000.	158.467
392, NON 772802784.0 52953810.5 .NON 772802784.0 52953810.5 .NON 772802784.0 52953810.5 .NON .NON .NON .NON .NON .NON .NON .N		376.000	772802784.0	52953910.5	oug•	000.	158.538
392,000 772802784,0 52953810,5 ,000 400,000 772802784,0 52953810,5 ,000 403,136 772802784,0 52953810,5 ,000		3 84 . DAN	772802784.0	52953810.5	Ouu.	00u*	158.664
### ##################################		392, 000	772882784.0	52953810.5	.000	•000	154.666
433,136 772802784.0 52953810.5 .000		400.000	772802784.0	529538111.5		000.	158.2724
125 175 175 1 52052810 5	T.N. SFC TT ON	433, 136	772802784.0	5295381P.5	.000	000.	158.746
		403.136	772802784.0	52953810.5	000.	.000	158.746

Table C-2, Trajectory Tables for the Mission with an Inclination of 55° and a Cargo of 11,339.807 kg (25,000 lbs)

(Continued)

MOC/HCR I=55.0 FUEL 3064K+524K (25K PAYLOAD)

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			APOLLO 13	NOILISON	COORDINATES	S	ı
	S E V	¥	× Fu	Σ.	j U-	Σ	Z FT
:					:		:
11FT-0FF	. 699	6 2 7 3 2 9 3 4 3	20909754.7	11032.1	36194 .5	-14132 +3	-46365 8
	C III	5372293 2	7. 45.150.02	11032.1	36194.5	-14132.3	-46365 # 8
	E CO	6773327.2	7886887	12371 04	9° 42404	-13125.7	-43063°2
	9. DITE	F373433.4	7091112017 47	13610.6	44654°2	-12118.8	-397600
BFGIN TILL	8, ABB	6373431.4	20010207.7	136111.5	44654 a.2	-12118.8	-39760 _* 0
a second	12,0106	F3736118 8	20916796.0	14899.6	48883.3	-11110.9	-36453.1.
	15, 000	6173862.9	20191152345	16188.4	53111 aF	-10097 .2	-33127 . 2
	20,000	6374196.7	20912718.7	17476.9	57339.0	-9071 a8	-29763.1
END TILL	20, 400	6374196.7	211912718.7	17476.9	57339 an	-9071 *8	-29763.1
	24 . (1911)	6374613.6	20914086.2	18765.1	61565.4	-8029.2	-26342.5
	29, 696	6375116.5	20915736 \$ 5	20053.0	E5790 *8	-6962 * 5	-22843.0
	32.000	63757118 o 6	711917679 of	21340.E	70015.0	-5862.9	-19235 2
	38,000	6376392.2	2031992147	22627.7	74737.9	-4720.1	-15485.9
	40.PDD	£377168.9	20922470.0	23914.4	78459.3	-3523.0	-11558.3
	94, 1100	6378039.2	20925325.5	75200.7	82679 3	-2259 .5	-7412.9
	48,066	£379UU7.11	0.928484.0	26486 4	86897.7	-917 *2	-3008 ° U
	52,000	6330082.9	20931931.7	77771.7	91114 4	516.0	1692.9
\$ 	5 F . Piliti	£381185.3	201935647.2	29056.4	95329.3	2051.4	6730 . 4
	5n. non	6382391.9	20939606.0	311340 .5	99542 *2	3700.5	12140.8
ID KMA.	62.6611	F3P3233.5	201942367.0	31193.9	102342.3	4866.4	15965.9
	54.000	6383689.3	20943795.7	31624.0	103753.2	5476.7	17968.3
	11. J(J 6 3 3	E385016.5	7B948216.7	329NE.A	107962.0	7395.8	24264 . 3
PHIMIXAM	54.232	63851196.2	20948445.5	32971.5	108174.1	7496 .6	24595 .1
	72. DDI	6386432ªF	20952862.7	34189.D	112169 .6	947403	31083.°7
Ju Kas.	74.004	6387201.2	20955384.2	34959*8	114369.4	10631 ° 7	34881 .0
	76.0000	E387917.2	20957733.5	35470.5	116372 09	11730.1	38484 °E
	9 G. AM	6389469.4	2096282E O	36751 02	120574 .8	14181 .9	46528 *5
	11011.48	6391088.4	20.568137.7	38031.2	124774°2	16849,0	55278 "7
	99,000	F392772.2	20973662.0	39310.3	128970.9	19750 *5	64798.3
The state of the s	97.000	6394517.E	2,83567915	40588.7	133164.9	52905.4	75148.8
	95,000	£39£321.1	20985305.2	41866.2	137355 41	26331.7	86390 .2
	100.000	F 398178 . []	201991397.5	43142.7	141544.4	30047.5	98581,1
	104,000	649114183.7	711997649.7	44418.4	145729 .7	34070 *2	111778.8
	100.000	54020132°, 8	21004044.5	45693.1	149911.8	38416,5	126038.3

Trajectory Tables for the Mission with an Inclination of 55° and a Cargo of 11,339.807 kg (25,000 lbs) Table C-2.

	-	MDC/HCR I=55	(Continued) MDC/HCR I=55.0 FUEL 3D64K+524K (25K PAYLOAD)	d) 	LOAD?		
t sale and there was an extra company to warm		ī	APOLLO 13	POSITION	COORDINATES	v	r
	SEC	Σ	⊬ L	Σ	<u>н</u> ,	Σ.	5 FT
	112.000	6404019.7	21010563.2	46966.0	154090.8	431.02.7	141413.0
	116,000	6405038.7	21017187.2	48739.6	158266.4	48144.8	157955.4
	124.000	641181185.3 6410149.7	21030675.n	50781.9	166507.3	59359.7	194749.6
	128.000	6412230.2	21037500.5	52051.4	170772.3	65563.7	215104.0
- A Management of Company Workship of the Principles of the Company of the Compan	132, 040	6414319.7	21044356.0	53419.8	174937.7	72186.2	236831 45
	140.000	5418501.5	21053075.7	55854.1	183245.0	9674341	284590.2
	144.000	6420576.7	21064884.2	57117.9	187394.7	94690.0	310662.9
	ា្រម ទ. ០០០	6422629.5	21071519.0	58381.5	191540.3	103086.3	338209.7
	152.000	F424651.1	24078251.5	59643,8	195581.7	111974.1	367238 °D
Makey , and depositions is party many	160,000	0.000000000000000000000000000000000000	2106475547	62164.5	194818 • 5 20 4951 • F	130992.1	429764.0
•	164, 000	6430449.7	21997275.0	F3427 . R	208079.9	141205-4	463272.2
	168.000	64322F8.9	21103244.2	64679.7	212203.7	151876.7	498283 °U
	172, 030	6434019.4	211118987.2	65935+7	216322 . 8	163007 •0	534 800 "0
	176.000	6435694.6	21114483.5	£7189.2	220437.1	174597.4	572826.2
	190° 000	6437288.3	21119712.2	68441 *8	224545	185549.5	K12364 a2
	188.00	5440206.6	71179286.5	70942.4	737750.8	212135.8	5.05.083.56 5.05.083.56
	192.000	F441519.5	21133594 .0	72190.4	236845.2	225572.7	7400F8.U
	195.000	5 * 12124 # 9	21137557.7	73436 48	240934-5	239472 #3	785670.4
	197.441	6443136.0	21138897.5	73885,2	242405.9	244591.6	802465.7
· · · · · · · · · · · · · · · · · · ·	200,000	644513641	21141172.7	74581.6	247405.5 2451118.4	754748.8	8224554
	204, 890	6444756.4	21144214.0	75924.7	249096 9	25802945	979361 47
	207.441	6445441.7	21146462.0	76992.7	252600.7	280316.3	919672.8
ORR TGNITION	207. 441	6445441.7	21145452.0	76992.7	252600 47	28031643	319672 •8
BEGIN MIN-H	207.441	F445441.7	21146462.0	76992.7	252600.7	280316.3	91 56 72 .8
	១៣៥. ពការ	6445542.9	21146794.2	77156.2	253170 •0	282315.8	926233 40
	216.000	64467811.9	21150856.N	79F44 .D	61299	311349.7	1021619.9
The state of the s	.224. nan	5447670.5	211 53610.5	82114.9	69405	341377.7	11200u5.5
	237,000	6448052.7	21155028.2	5 8 6 7 7 9 5 5	27.7489.[]	372306.4	1221477.7
	740, 000	2 * 1 S D C + 5 S	211000112	5 to 54 ° 4	0.000 a c c c c c c c c c c c c c c c c c	404702.3	70021020

Trajectory Tables for the Mission with an Inclination of 55° and a Cargo of 11,339.807 kg (25,000 lbs) Table C-2.

(Continued)

MICZHOR IESSAN FUFL 3064K+524K (25K PAYLOAD)

			sporto 13	POSITION	COORDINATES	ES		
	J*4 I 1		×	>			2	
	C H V		. J	Σ.	F 4	Σ	FT	
	749. HAG	6447655 ₄ U	21153723 .5	8.78488	2-815262	437099 .8	1434054 .4	
	256,000	6446803.3	21150929.2	91923.3	301585.5	471025.2	1545358.2	
	754, 000	8445300.4	21146654.5	94 252 46	3119565.46	506013.0	1650147.5	
	277. (inti	E443772.9	2114U85F.N	9€779°€	717518.3	542098.0	1778536.8	
	240, 000	5441486.8	21133486.7	99195.0	325442.9	579317.3	1900647.2	
	288. fills	6432746.6	21124496.5	101601.6	338338.6	617710.0	20266.07 a.6.	
	295, 000	6435495.4	21113930.0	103999.2	341204.9	657318 .1	2156555.4	
	304.000	6431715.4	211111428,5	106387.6	349040.6	698186.3	2290E37.5	
	312, 000	6. 7885.9	21037227.0	108766 45	356845 .5	740362 .6	2429011 43	
	320,000	R422488.5	21071156.2	111135.8	364618.6	783898 6	2571845.9	
	329. 11111	6416997.N	21053139.5	113495 41	372359 •4	928849.9	2719323.7	
	336,000	F4111887.1	71033093.7	115844.4	380066.9	8.7527.6 .6	2871642.4	
	និងស. ព្រាព	640413U=7	21010927.5	118183.4	387740.7	923244 .2	3029016 .4	
	352,000	£39F697.7	20986541.0	120511.8	395379.9	972824.1	3191680.0	
	3£ 11. POU	588554°2	20959823°2	122829.5	402983.8	1024094.8	3359891 aD	
	368.000	E3796F4.2	20930656.7	125136 .2	410551.8	1077126.8	3533880.5	
	376. AUG	6369995.1	2089833.7	127431.7	413087.1	1131931 44	3713685 .5	
at Thereign	384.000	6359514.9	20864550.2	129715.9	425577.1	1188499.7	3899277,2	
	302,000	6348192.4	ZP827402.7	131988.5	433033.1	1246822.5	4090624 8	
	4 (10 • (10)	535396.2	20787389.0	134249.3	440450.3	1306889.6	4287695°5	
INJECTION	431.136	6330970.6	7,0090077115	135132.1	ម្នះក្នុង ខ្លួន មនុស្ស	1330906.7	4355491.8	
	41:3, 136	£330970.6	20770900.7	135132.1	443346.8	1330906 .7	4366491.8	

Trajectory Tables for the Mission with an Inclination of 55° and a Cargo of 11,339.807 kg (25,000 lbs) Table C-2.

(Continued)

MOC/HCR I:55.0 FUEL 3064K+524K (25K PAYLOAD)

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			APOLLO 13	VEL OCITY	COMPONENTS		
	TIME	XD M/SEC	XDOT F1/SEC	YD01 M/SEC	FT/ISEC	ZI M/SEC	ZDOT FT/SEC
	an interest paragraph a commercial for the Commercial	toda e con de deservo de constitución de const					
LIFT-OFF	000	ono.	000.	322.345	1057.564	251 634	875,256
		1011	0011.	322.343	100/1004	751 6534	87.0 2.05.0
	000	77 . 16.5 25.065	115.00	714 - 775	1057.357	751.729	825.883
BEGIN TILI	8, 000	35,065	115.044	322-283	1057,357	251.729	925 893
	12.000	53.812	176,549	322,228	1057-177	252.467	828.305
	16,000	73.358	240.676	322-165	1056.971	584 .544	935 .447
	20.006	93,696	307,402	322.094	1056.739	258.301	847.443
END TILT	20° U00	93.696	307.402	322.094	1056.779	258 - 301	847.443
	24.000	114,848	376.798	722.015	1056.480	263.312	863.886
	29,000	138.773	448.731	321.929	1055.196	270.390	887.105
	32.000	159,371	527.873	321.834	1055.88F	279.857	918,167
	36, 000	182.486	598,709	321.732	1055.550	292 •004	958 .019
	40.000	205,901	675,527	321.621	1055.188	307.010	1007.448
	44. NOO	229.231	752,072	321.583	1054.801	325 4706	1056 .949
	48.000	251.943	826,584	321.377	1050.387	346.441	1136,618
	c 2.'nn	273.214	896.372	321 -243	1053.948	370 .604	1215 4892
Marine Middle and marrow or of the property of the party	- 466.000-	292,648	968.130	321.102	1053,494	397.573	1304,374
	6D. 000	310.572	1018.937	370.952	1052.993	427 0545	1402.707
-to KHS.	62.FED	322,240	1057.218	320.849	1052,653	664,644	1474.735
	64.000	328.094	1076.425	320.795	1052.477	451 .729	1513 -219
	68.00n	345.44]	1133,337	320.630	1051.936	498.978	1537.068
O MAXIMUM	58.202	346.311	1136.191	320.622	1051.908	500 .993	1543 .679
	72, 000	362,616	- 1189 685	320.457	1051.369	541.035	1775,048
Ja KMS.	74. Nou	371.543	1218.972	320.364	1051 -063	564 349	1853 .180
Ť	76. NDF	379,633	1245,514	320.277	1050.777	587.650	1927,986
	40. กกก	396.462	1300.728	320.039	1050.150	639 .042	2036 45 93
	000.48	412.949	1354.821	319,893	1049,517	695 .292	2281.141
	98,000	428.793	14116.900	319.649	10484.850	756 -278	2481 .225
- 100 - 100 to comprehense publication in the part to expense		443.777	3455.963	319.478	1048.157	821,895	2696,506
	95. NRO	457.738	1501.766	119.250	1047 .440	892 -037	2926 •631
The second secon	100° 000	470.542	1543.773	319.033	1046.607	966 .590	3171.227
	104, 000	487.082	1581.532	318.799	1045.930	1045.434	34294901
	108.000	492.241	1614,965	318,558	1045.138	1128.393	3702.078

Table C-2. Trajectory Tables for the Mission with an Inclination of $55\,^\circ$ and a Cargo of 11,339.807 kg (25,000 lbs)

(Continued)

THE NOTE THE NOTE TO THE NOTE NOTE NOTE NOTE NOTE NOTE NOTE NOT				8 POLL 0 13	VELOCITY	COMPONENTS		
172,		E C V F	MISEC		ပ			DOT FT/SEC
15c, 1001 504,270 1667,553 718,053 1043,491 1306,331 120,,000 514,118 1686,737 317,789 1047,265 1499,990 120,,000 514,118 1710,928 317,519 1040,812 1002,662 132,491 1710,928 317,239 1040,812 1709,264 135,000 527,101 1716,928 316,660 1038,912 17109,264 135,000 527,101 1716,928 316,660 1037,926 1930,448 135,000 527,101 1718,936 316,660 1037,926 1930,448 144,000 571,899 1694,092 316,052 1037,926 1930,448 155,000 577,329 1694,092 315,015 1037,936 1930,491 155,000 577,329 156,000 157,747 1037,825 2568,571 156,000 467,782 156,000 1677,747 114,018 1037,744 2382,775 155,000 467,782 156,000 1677,742 1677,742 1031,813 2610,523 156,000 172		112,600	F [][fi. 977	1643.624	318,309	1044.322	1215.378	3987.461
120, 120,		115, 1100	509.270	1667.553	318.053	1043.481	1306.331	4285-864
124, 010 518,520 1701,180 317,518 1041,725 1499,990 170,964 1710,928 317,523 1040,812 1602,664 135,000 523,011 1716,245 316,660 1038,912 1810,448 192,000 523,384 1718,935 316,660 1038,912 1810,448 194,000 523,384 1718,935 316,360 1037,932 1930,783 194,400 1930,783 1643,182 1672,065 316,360 1038,912 1810,448 182,000 194		120.000	514.118	1686.737	317.789	1042,615	1401.213	4597.154
178,600 521,491 1710,928 317,239 1040,812 1602,662 157,101 1716,928 316,954 1039,984 1716,962 156,954 1716,954 1716,956 1930,984 1716,946 1716,366 1038,912 1819,448 196,090 527,884 1716,926 316,360 1037,926 1930,783 1944,006 571,884 1716,205 316,737 1035,916 2192,804 1944,006 516,359 1694,092 315,415 1038,825 2268,771 156,000 467,041 1607,747 315,485 1038,825 2268,771 156,000 467,329 1566,000 314,747 313,440 2382,475 175,010 429,493 1415,818 314,749 1031,511 2610,553 175,010 429,493 1415,818 313,474 1027,984 2382,475 175,010 429,493 1415,818 312,584 1027,984 2382,475 175,010 429,493 1415,818 312,584 1027,984 2382,475 194,000 400,400 1118,405 312,594 1025,521 3185,881 194,405 1072,014 377,441 377,446 317,495 317,199 1021,650 337,442 3371,425 197,441 278,460 913,581 311,253 1021,171 3574,429 197,441 278,460 913,581 311,253 1021,171 3574,429 197,441 177		124,000	518.520	1701.180	317.518	1041 -726	1499,990	4921-228
172, DOT 523,059 1716,069 316,954 1038,874,41 1718,264 140, 000 523,111 710,246 316,660 1038,912 1810,448 140, 000 573,111 710,246 316,660 1037,926 1920,280 140, 000 573,645 1694,092 316,052 1036,835 2042,804 140, 000 570,645 1672,065 315,415 1038,825 2568,671 152, 000 490,491 1607,748 1033,744 238,717 154, 000 467,785 1514,323 314,764 1031,511 2610,523 154, 000 467,785 1514,470 314,764 1031,511 2610,523 156, 000 468,403 1464,840 314,476 313,440 314,476 312,536 1031,531 2496,177 154, 000 468,403 1464,840 314,476 312,435 1024,754 310,441 310,441 311,444 312,435 310,441 311,444 311,444 311,444 311,444 311,444 312,435		128.606	521.491	1710.928	317.239	1040.812	1602.662	5258.078
136,000 527,111 1716,245 316,660 1038,912 1819,448 194,000 577,111 1716,245 316,660 1037,926 1930,783 194,000 516,359 1672,065 316,052 1035,882 2155,425 194,000 510,359 1672,065 315,737 1035,882 2155,425 152,000 510,842 1643,182 215,415 1038,825 2768,571 152,000 510,842 1643,182 215,415 1038,825 2768,571 152,000 407,041 157,747 315,415 1038,825 2768,571 154,000 405,785 1514,747 315,415 1031,511 2610,527 154,000 406,483 1464,840 314,405 1031,511 2610,527 177,000 406,483 1464,840 314,405 1031,511 2610,527 177,000 408,493 1464,840 314,405 1031,511 2610,527 160,600 176,000 377,719 1271,996 312,958 1026,756 3070,451 190,000 315,759 1027,987 1026,752 3185,881 190,000 315,759 311,799 1021,650 3574,429 1077,441 278,460 313,581 311,799 1021,650 3570,429 107,441 278,460 313,581 311,253 1021,171 3574,429 207,441 278,460 313,581 310,215 1017,766 3570,427 277,441 172,703 599,421 310,215 1017,766 3570,427 277,441 182,703 599,421 310,215 1017,766 3570,427 277,441 182,703 299,421 310,215 1017,766 3570,427 277,441 182,703 299,421 310,215 1017,756 3570,427 277,441 182,703 299,421 310,215 1017,756 3570,427 277,441 182,703 299,421 310,215 1017,756 3570,427 277,441 182,703 299,421 310,215 1017,756 3570,427 277,441 179,297 299,421 310,215 1017,756 3570,427 277,441 179,297 299,421 310,413 340,427 3570,427 3		132, 0011	523.058	1716,069	316.954	1039-874	1709.264	5507.823
140, 1100 571,884 1718,936 316,360 1037,926 1930,783 1940,100 571,884 1718,936 316,360 1037,892 1940,783 1940,100 572,645 1672,062 315,415 1038,825 255,425 1672,004 1617,747 315,485 1038,825 256,571 1672,825 1672,425 1038,825 275,425 167,747 1617,747 315,485 1033,744 2382,475 167,740 1617,747 315,485 1033,744 2382,475 167,000 400,004 1617,747 315,485 1033,744 2382,475 167,000 406,483 144,749 1031,511 2610,523 167,485 177,449 177,495 134,495 1027,987 2940,006 177,441 278,460 1178,467 311,253 1021,171 3574,429 107,441 278,460 913,581 311,253 1021,171 3574,429 107,441 278,460 913,581 311,253 1021,171 3574,429 107,441 278,460 913,581 311,253 1021,171 3574,429 107,441 177,460 317,460 317,460 310,215 1017,766 3570,427 277,441 177,460 317,460 310,215 1017,766 3570,427 277,441 182,703 599,421 310,215 1017,766 3570,427 277,441 182,703 599,421 310,215 1017,766 3570,427 277,441 182,703 599,421 310,215 1017,766 3570,427 277,441 182,703 599,421 310,215 1017,766 3570,427 277,441 182,703 278,481 279,481 27		136.000	527,111	1716.245	316.660	1038.912	1819.448	5969.316
10 10 10 10 10 10 10 10		140, 000	5274884	17118.936	316.360	1037.926	1930 4783	6334 \$589
144, 100 509,645 1672,065 315,737 1035,882 2155,425 152,006 510,842 1643,182 215,415 1038,825 2268,571 152,006 400,041 1617,47 315,415 1038,825 2268,571 154,000 402,785 1519,323 314,405 1031,511 2610,523 154,000 466,083 1466,840 314,405 1031,511 2610,523 155,000 426,083 1466,840 314,405 1029,195 2725,165 156,000 426,083 1415,818 312,958 1026,766 3070,495 156,000 316,390 1341,947 312,958 1026,766 3070,495 156,000 316,350 1118,405 312,958 1026,251 3185,881 157,441 278,460 913,581 311,253 1021,171 3574,429 157,441 278,460 913,581 311,253 1021,171 3574,429 207,441 278,460 913,581 311,253 1021,171 3574,429 207,441 182,703 599,421 310,215 1017,766 3570,427 208,401 182,703 599,421 310,215 1017,766 3570,427 208,401 182,703 599,421 310,215 1017,766 3570,427 208,401 28,153 310,215 1017,766 3570,427 216,001 28,153 310,215 1011,811 369,321 227,601 27,401 320,033 320,321 227,601 370,23 420,321 310,215 1011,811 3578,421 227,601 27,401 27,401 27,401 27,401 27,401 227,601 27,401 27,401 27,401 27,401 27,401 227,601 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401 27,401		104.000	516,359	1694.092	316.052	1036.916	2042.804	E 702 . 111
152.006 500.842 1643.182 315.415 1038.825 2268.571 156.006 490.041 1607.747 315.405 1033.414 2382.475 156.007 477.329 1566.040 314.405 1033.514 25382.475 154.001 406.483 1464.840 314.476 1031.511 2610.6523 156.001 406.483 14015.818 313.696 1029.195 2940.060 175.001 406.481 1341.477 313.336 1027.987 2955.165 176.001 406.881 1341.477 313.336 1027.987 2955.167 190.001 315.355 1034.630 312.998 1027.987 2955.167 190.001 315.355 1034.630 311.799 1025.251 3165.881 190.441 278.460 946.412 311.293 1021.650 3532.751 197.441 278.460 913.581 311.253 1021.171 3574.429 197.441 278.460 913.581 311.253 1021.171 3574.429 200.441 182.763 599.421 310.215 1017.766 3570.427 201.001 215.634 717.460 310.215 1017.766 3570.427 201.401 182.763 599.421 310.215 1017.766 3570.427 215.600 130.032 426.613 310.215 1017.766 3570.427 222.100 22.324 310.337 3690.821 223.100 22.324 310.337 3690.821 223.100 22.324 310.337 3690.821 223.100 22.324 310.333 310.333 3571.885 240.001 21.652 31.823 310.215 1017.766 3570.427 222.100 22.324 310.423 310.833 3571.885 240.001 21.652 310.823 310.833 3571.885 240.001 21.652 310.823 310.833 3571.885 252.001 21.652 310.823 310.833 3571.885 252.001 21.652 310.823 310.833 3571.885 252.001 21.652 310.823 310.833 3571.885 252.001 21.652 310.823 310.833 3571.885 252.001 21.652 310.823 310.833 3571.885 252.001 21.652 310.823 310.833 3571.885 252.001 21.652 310.823 310.833 3571.885 252.001 21.652 310.823 310.833 3571.885 252.001 21.652 310.823 310.833 3571.885 252.001 21.652 310.823 310.833 3571.885 252.001 21.652 310.823 310.833 3571.885 252.001 21.652 310.823 310.833 3571.885 252.001 21.652 310.823 310.833 3571.885 252.001 21.652 310.823 310.833 3571.885 252.001 21.652 310.823 310.833 3571.885 252.001 21.823 310.823 310.833 3571.885 252.001 21.823 310		144.NAU	543.605	1672,065	315.737	1035.892	2155 425	7071 •604
156.000 490.041 1607.747 315.085 1033.744 2382.475 151.000 490.041 1607.747 315.085 1033.744 2382.475 151.000 495.285 1516.040 314.748 1031.511 2610.623 152.000 406.483 146.840 314.076 1031.511 2610.623 152.000 406.483 1405.813 313.696 1029.195 2755.165 172.000 406.880 1341.470 313.696 1027.987 2955.167 190.000 406.880 1107.583 312.958 1027.987 2955.167 191.000 345.355 1034.630 312.958 1027.987 2955.167 192.000 345.355 1034.630 312.799 1024.254 3301.425 192.000 345.355 1034.630 311.253 1021.171 3574.429 197.441 278.460 913.581 311.253 1021.171 3574.429 197.441 278.460 913.581 310.253 1021.171 3574.429 204.441 278.460 913.581 310.215 1017.766 3570.427 207.441 182.703 599.421 310.215 1017.766 3570.427 208.001 130.032 426.613 310.215 1017.766 3570.427 232.000 130.032 426.613 310.215 1011.777 3690.824 232.001 22.384 310.420 3018.794 3926.039 240.001 22.384 30.799 306.533 1001.811 28.159 29.384 306.533 1005.794 3926.039 240.001 22.384 308.533 1005.295 1006.895 240.001 22.384 306.533 1005.896 4048.955 240.001 22.384 306.533 1005.696 309.895 240.001 22.384 306.533 1005.896 4048.955 240.001 24.529 200.895 306.533 306.523 240.001 24.529 200.895 306.533 306.523 240.001 24.529 200.895 306.533 306.523 240.001 24.529 200.895 306.533 306.5039 240.001 24.529 200.895 306.5039 200.995 240.001 24.529 200.995 306.5039 306.5039 240.001 240.529 200.895 306.5039 200.995 240.001 240.529 200.895 306.895 240.0001 240.529 200.895 306.895 240.0001 240.529 200.895 306.895 240.0001 240.529 200.895 306.895 240.800.8001 200.8001 200.8001 200.8001 240.800.8001 200.8001 200.8001 200.8001 240.800.80		152,006	500.842	1643,182	715,415	1034.825	2268,571	7442.819
160.000 477.329 1566.040 314.748 1032.639 2496.177 154.000 462.785 1514.323 314.405 1031.531 2610.523 154.000 466.483 144.405 1031.531 2610.523 175.000 466.483 144.405 1021.550 275.165 175.000 468.483 144.407 312.350 1027.987 2955.165 176.000 468.483 1197.553 312.958 1024.256 3070.451 190.000 340.493 1197.553 312.799 1024.254 370.451 191.000 340.493 1194.650 312.799 1024.254 370.451 192.000 311.8940 312.799 1024.254 370.451 370.451 192.001 311.840 311.399 1021.371 3570.451 370.425 192.441 278.460 913.581 311.359 1021.353 3571.465 200.441 278.460 913.581 310.21.71 3574.429 200.400 278.461		156. NUB	490.041	1607.747	315.185	1033-744	2382-175	7815-536
154, DBH 462,785 1514,323 314,405 1031,511 2610,523 154, DBH 462,483 1464,840 314,475 1030,350 2725,165 172, DBH 425,493 1415,818 312,954 1027,987 2940,050 176, DBH 387,714 1271,995 312,958 1027,987 2955,167 194, DBH 387,714 1271,995 312,958 1026,756 3070,451 194, DBH 387,714 1271,995 312,954 3301,425 194, DBH 387,46B 3118,405 312,959 1025,521 3185,881 194, DBH 378,46B 3118,405 311,259 1025,521 3185,881 197, 441 278,46B 913,581 311,253 1021,171 3574,429 197, 441 278,46B 913,581 311,253 1021,171 3574,429 204, DBH 257,038 873,131 310,291 1020,313 3573,454 207, 441 182,767 599,421 310,215 1017,766 3570,427 207, 441 182,703 599,421 310,215 1017,766 3570,427 208, DBH 379,297 588,244 310,155 1017,571 3578,487 272, DBH 273,681 273,848 310,423 3906,721 273, DBH 274,623 308,533 1008,794 3926,039 240, DBH 274,623 4048,953 316,533 1008,794 3926,039 240, DBH 274,623 4048,955 1008,794 3926,039 240, DBH 274,623 308,533 1005,295 1008,794 240, DBH 274,623 308,533 1005,695 1008,995 240, DBH 274,623 308,533 1005,695 1008,995 240, DBH 274,623 274,440 1008,995 1008,995 240, DBH 274,623 274,440 1008,995 1008,995 240, DBH 274,623 274,440 274,640 275,640 275,640 275,640 240, DBH 277,97 274,670 274,670 274,670 274,670 274,670 274,670 275,640		160.090	477,329	1566.040	314,748	1032.639	2496 . 177	8189.558
168,00 446,483 1464,840 314,154 1030,350 2725,165 172,070 429,493 1415,818 313,696 1029,195 2940,060 176,000 429,493 1415,818 313,696 1027,987 2940,060 176,000 316,302 1107,583 312,958 1026,766 3070,495 194,000 316,355 11034,630 312,193 1024,254 3301,425 197,441 278,460 913,581 311,293 1021,254 3301,425 197,441 278,460 913,581 311,253 1021,171 3574,429 197,441 278,460 913,581 310,293 1021,171 3574,429 200,401 275,400 215,690 921 310,591 1021,171 3574,429 274,400 215,690 921 310,215 1017,766 3570,427 277,441 182,703 599,421 310,215 1017,766 3570,427 277,441 182,703 599,421 310,215 1017,766 3570,427 276,400 179,032 269,421 310,215 1017,766 3570,427 276,400 170,032 269,421 310,215 1017,766 3570,427 276,400 170,032 269,421 310,215 1017,767 3578,485 276,407 276,40		154. non	467.785	1519,323	314 4035	1031 .511	2610 .523	8564 *709
172,010 424,493		168.000	446.483	1464.840	314.054	1030.360	2725 . 165	8940.831
176.000 4108.981 1341.470 313.330 1027.987 2955.167 190.000 387.714 1271.996 312.958 1026.252 3070.451 190.000 315.355 1107.583 312.193 1025.521 3105.481 190.000 315.355 11034.630 311.799 1021.650 3532.751 190.000 315.355 11034.630 311.253 1021.650 3532.751 190.441 278.460 913.581 311.253 1021.171 3574.429 197.441 278.460 913.581 311.253 1021.171 3574.429 200.000 215.634 717.460 310.215 1020.313 3573.464 200.441 182.703 599.421 310.215 1017.766 3570.427 201.441 182.703 599.421 310.215 1017.766 3570.427 201.441 182.703 599.421 310.215 1017.766 3570.427 201.441 182.703 599.421 310.215 1017.766 3570.427 201.441 22.2160 320.427 310.215 1017.766 3570.427 201.441 22.344 310.215 1017.766 3570.427 201.441 28.159 92.384 310.215 1011.437 3690.824 201.4820 308.794 308.794 3926.039 201.400 22.384 308.533 1005.896 4048.955 201.820 201.820 201.820 201.820 201.820 201.820 201.820 201.820 201.820 201.820 201.82		172,010	429.493	1485,818	313.696	1029 195	2840 •060	9317 "781
19th filth		176.000	4118.9811	1341.4711	313,330	1027.987	2955.167	624.8639
194, fff 265,023 1197,583 312,579 1025,521 3185,881 194, fff 340,390 1118,465 312,193 1024,254 33f1,425 197,441 278,466 946,412 711,399 1021,650 3532,751 197,441 278,460 913,581 311,253 1021,171 3574,429 197,441 278,460 913,581 311,253 1021,171 3574,429 201,1010 255,438 873,131 311,253 1021,171 3574,429 201,1010 255,438 873,131 310,291 1020,313 3573,454 201,1010 257,461 359,421 310,215 1017,766 3570,427 201,441 182,763 599,421 310,215 1017,766 3570,427 2017,441 182,703 599,421 310,215 1017,766 3570,427 2018,010 179,797 588,244 310,156 1017,766 3570,427 2018,010 179,797 268,613 308,292 10114,737 3690,821 272,4010 272,244 317,480 1011,811 3806,721 272,4010 272,244 306,523 306		140.688	387 . 7134	1271.996	312.958	1026.766	3070 451	10073 .659
193,006 340,390 1118,405 312,193 1024,254 3301,425 192,000 315,355 1034,630 311,799 1022,963 3417,057 195,100 288,466 946,412 711,399 1021,650 3532,751 197,441 278,460 913,581 311,253 1021,171 3574,429 197,441 278,460 913,581 310,291 1020,313 3574,429 200,401 255,938 833,131 310,291 1020,313 3574,429 207,441 182,703 599,421 310,215 1017,766 3570,427 207,441 182,703 599,421 310,215 1017,766 3570,427 207,441 182,703 599,421 310,215 1017,766 3570,427 207,441 182,703 588,244 310,156 1017,766 3570,427 276,400 130,032 276,400 1011,811 360,824 272,400 28,159 92,384 307,480 1011,811 3806,721 232,400 271,801 2		100.001	365,023	1197,583	312.579	1025.521	3185.881	10452.364
102,000 315,355 1034,630 311,799 1022,963 3417,057 195,000 288,466 946,412 711,399 1021,650 3532,751 197,441 278,460 913,581 311,253 1021,171 3574,429 197,441 278,460 913,581 310,253 1021,171 3574,429 200, 001 255,438 873,131 310,991 1020,313 3573,464 297,441 162,767 599,421 310,215 1017,766 3570,427 207,441 182,703 599,421 310,215 1017,766 3570,427 207,441 182,703 599,421 310,215 1017,766 3570,427 207,441 182,703 599,421 310,215 1017,766 3570,427 207,441 120,703 426,613 310,215 1017,766 3570,427 227,400 120,032 426,613 310,215 1017,371 3578,185 235,400 1011,811 3806,721 235,400 1011,811 3806,721 244,629 -80,799 306,533 1005,696 4048,955 240,001 244,629 -80,799 306,533 1005,696 4048,955 240,001 244,629 240,799 306,533 1005,696 4048,955 240,001 244,629 240,799 306,533 306,533 306,533 306,455 306,6039 306,6033 306,6039 306,6		198.006	340.390	1118.405	312,193	1024.254	3301,425	10831 446
196. 100 288.466 946.412 711.399 1021.650 3532.751 197.441 278.460 913.581 311.253 1021.171 3574.429 197.441 278.460 913.581 311.253 1021.171 3574.429 205.401 2573.938 833.131 310.991 1020.313 3573.454 2973.4401 2573.460 310.877 1019.953 3573.454 2973.441 162.703 599.421 310.215 1017.766 3570.427 277.441 182.703 599.421 310.215 1017.766 3570.427 278.401 132.703 599.421 310.215 1017.766 3570.427 278.401 132.703 426.613 310.215 1011.737 3590.824 274.401 120.032 426.613 310.292 1014.737 3690.824 272.400 1011.811 3806.721 272.600 272.384 317.480 1011.811 3806.039 240.61 28.253 1005.633 1005.635 306.853 30		102,000	315,355	1034,630.	311.799	1022.963	3417.057	11210.815
107,441 278,460 913,581 311,253 1021,171 3574,429 197,441 278,460 913,581 311,253 1021,171 3574,429 197,441 257,460 913,581 310,253 1021,171 3574,429 200,000 215,634 717,460 310,577 1018,953 3571,863 207,441 182,703 599,421 310,215 1017,766 3570,427 207,441 182,703 599,421 310,215 1017,766 3570,427 207,441 182,703 599,421 310,215 1017,766 3570,427 208,000 179,237 588,244 310,156 1011,737 3690,824 224,000 22,384 308,400 1011,811 3806,721 224,001 22,384 306,533 1005,636 4048,955 240,000 24,629 -80,799 306,533 1005,636 207,441 27,824 310,215 310,215 240,420 310,233 1005,636 4048,955 240,000 24,629 -80,799 306,533 1005,636 240,420 240,629 -80,799 306,533 240,420 240,629 -80,799 306,533 240,420 240,629 -80,799 306,533 240,420 240,629 -80,799 306,533 240,420 240,629 -80,799 306,533 240,420 240,629 -80,799 240,420 240,629 -80,799 240,420 240,629 -80,799 240,420 240,629 -80,799 240,420 240,629 -80,799 240,420 240,629 -80,799 240,420 240,629 -80,799 240,420 240,629 -80,799 240,420 240,629 -80,799 240,420 240,629 -80,799 240,420 240,629 -80,799 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 240,420 2		195. 1100	288.466	946 412	711.399	1021-650	3532 4751	11590 4391
197.441 274.460 913.581 311.253 1021.171 3574.429 210.000 255.438 873.131 310.991 1020.313 3574.429 210.000 215.634 701.460 310.291 1020.313 3573.454 207.441 142.763 599.421 710.215 1017.766 3570.427 207.441 142.763 599.421 310.215 1017.766 3570.427 207.441 182.703 599.421 310.215 1017.766 3570.427 207.441 182.703 599.421 310.215 1017.766 3570.427 207.441 182.703 599.421 310.215 1017.766 3570.427 207.441 170.297 588.244 310.156 1011.377 3690.824 224.100 79.681 261.420 318.400 1011.811 3806.721 232.400 22.384 317.480 1008.794 3926.039 240.400 22.384 310.426 308.533 1005.696 4048.955		107.441	278.460	913.581	311.253	1021.171	3574.429	11727.129
ZUIL, DIND 253,4938 873,131 310,991 1020,313 3573,454 ZUIL, DIND 215,634 717,460 310,577 1018,953 3571,463 ZUIL, AUT 162,707 599,421 310,215 1017,766 3570,427 N 207,441 142,703 599,421 310,215 1017,766 3570,427 207,441 182,703 599,421 310,215 1017,766 3570,427 207,441 182,703 588,244 310,156 1017,766 3570,427 208,000 179,001 130,002 1011,420 310,420 300,427 27,4100 27,4100 27,4100 1011,811 3806,721 27,2100 28,159 92,344 306,523 1015,811 3926,0039 24,621 28,159 -80,799 306,533 1005,696 4048,955	GE-PAPATION	197.441	279.4613	913.581	311,253	1021 171	3574 0429	11727 -129
2014,000 215,634 717,460 310,577 1018,953 3571,863 207,441 182,763 599,421 710,215 1017,766 3570,427 207,441 182,703 599,421 310,215 1017,766 3570,427 207,441 182,703 599,421 310,215 1017,766 3570,427 207,440 179,297 588,244 310,156 1017,766 3570,427 276,000 79,681 26,613 309,292 1014,737 3690,824 277,480 1011,811 3806,721 223,400 223,400 1011,811 3806,721 240,000 -24,629 -80,799 306,533 1005,696 4048,955 1		200.00G	253.938	833.131	310,991	1020.313	3573.454	11723.932
207.441 182.703 599.421 310.215 1017.766 3570.427 207.441 182.703 599.421 310.215 1017.766 3570.427 207.441 182.703 599.421 310.215 1017.766 3570.427 2078.000 179.297 588.244 310.156 1017.571 3578.427 276.607 130.032 426.613 309.292 1014.737 3690.824 224.000 79.681 261.420 308.400 1011.811 3806.721 240.000 -24.628 -80.799 306.533 1005.696 4048.955 1		204,000	215.634	7117.460	310.577	1018,953	3571 .863	11718,710
N 207,441 142,703 599,421 310,215 1017,766 3570,427 217,441 182,703 599,421 310,215 1017,766 3570,427 217,441 182,703 588,244 310,215 1017,766 3570,427 216,000 1320,032 426,613 319,2292 1014,737 3690,824 224,000 1011,811 3806,721 232,000 223,44 307,480 1008,794 3926,039 240,001 -24,629 -80,799 306,533 1005,696 4048,955 1		207.041	182.763	E99.421	710,215	1017.766	3570 . 427	11713.999
2017.441 182.703 599.421 310.215 1017.766 3570.427 208.040 179.297 588.244 310.156 1017.571 3578.185 216.060 130.032 426.613 309.292 1014.737 3590.824 224.000 79.681 261.442 318.440 1011.811 3406.721 232.400 22.344 317.480 1008.794 3926.039 240.701 22.354 316.533 1005.66 4048.955	ARS IGNITION	207.441	142.703	599.421	310 - 215	1017.755	3570.427	11713 4999
	BEGIN MIN-H	2017.441	182,703	599,421	310,215	1017.766	3570.427	11713.999
130,032 426,613 309,292 1014,737 3690,824 1 79,681 261,420 318,400 1011,811 3806,721 1 28,159 92,384 307,480 1008,794 3926,039 1 29,698 4048,955 1 1005,696 4048,955 1 1005,696 4048,955 1 1 1005,696 4048,955 1 1 1005,696 4048,955 1 1 1 1 1 1 1 1 1		208, 000	179.797	588.244	310.156	1017.571	3578.185	11739 453
1 79.681 261.420 308.400 1011.811 3806.721 1 28.159 92.384 307.480 1008.794 3926.039 1 -24.629 -80.799 306.533 1005.696 4048.955 1		216.000	130,032	426,613	309,292	1014.737	36.90°824	12109.002
28,159 92,384 307,480 1008,794 3926,039 1 -24,529 -80,799 306,533 1005,696 4048,955 1		224, 000	79.681	261.420	3118.400	1011.811	3 806 - 721	12489 242
->4.629 -80.799 306.533 1005.696 4048.955 1		232.000	8,15	92,384	3117.4817	1008.794	3926 . 039	12880.706
		240, 000	4 . 52	- 80.	306.533	1005.696	4048.955	13283 *974

Trajectory Tables for the Mission with an Inclination of 55° Table C-2.

and the statement of	ומחדת כייל	and a	table C-2. Italectory rabies for the firston with an inciting of 33 and a Cargo of 11,339,807 kg (25,000 lbs)	,339,807 kg	(25,000	lbs)	7
		Î.			i		
!			(Continued)	ned)			
		MOCZHCR ISS	M O C / H C R 1 = 55 . O F U F L 3 O 6 4 K + 52 4 K (25 K P A Y L O 4 D)	524K (25K PA	YLOAD)		
	Trade to a company of the department						
			AP-OLLO 13	VEL OCI	COMPONENTS		+000
	3 E C S E C	MISEC	FIVEC	MISEC	FT/SEC	MISEC	FT/SEC
	248.000	-78.778	-258.459	315.558	1002.486	4175.662	13699-678
	256.000	- 134,400	- 440.946	304.555	399.196	430F . 369	14128.506
	264, 000	-191.511	-628.646	303.525	995 #815	4441.306	14571 -213
	272.DAU	-250.537	-821.972	302.467	992.344	4580.725	15028,625
	290,000	-311,316	-1021.378	301 • 391	988 • 783	4724.904	15501 -654
	2-88 B-000	-374.099	-1227.360	300.268	985.132	4874,151	15991,309
	296, 000	-439.053	- 1440.462	299,128	981 - 391	5028.806	16498 4708
	304 • 000	-586,359	-1661.283	297.950	977.560	5189.249	17025.095
	312, 000	-575.221	-1890.489	796.766	973.640	5355 - 904	17571 .863
	320.000	-648.864	-7128.819	295.544	969.631	2529.247	18140.576
	328, 000	-724.540	-2377-100	562*462	965 -533	5709 *818	18732 +997
	336.000	-803.533	-2636 .263	293.019	961.347	5898*224	19351.129
	344, 000	-886.163	-7907-360	291.716	957.072	6095 - 163	19997 -253
	352 • 660	-972.797	-3191.590	290,386	957,709	6301.432	20673,989
	350, 000	-1963,844	-3490.300	289.029	949.259	6517 • 852	21394 - 028
	368,000	-1159.289	-3803.443	287.646	9413.722	6739.978	22112.788
	376, 000	-1253.677	-4129-519	285.237	639.097	966, 0963	22937 .915
	900° 186°	-1362,008	-4468.529	284.8D1	934,387	7180.894	23559.364
	392, 000	-1463.270	-4820.438	283,339	979.591	7399.585	24276 4855
	400.000	-1580.449	-5185.201	281.851	92# • 709	7616.979	24 990 . 087
INJECTION	403, 136	-1625.092	-5331,665	281.261	922 - 173	7701 4813	25268.415
	403.136	-1625.092	- 5331.665	281.261	922 . 173	7701.833	25268,415

Trajectory Tables for the Mission with an Inclination of 55° and a Cargo of 11.339.807 kg (25.000 lbs) Table C-2.

	ς. Σ	406/46R 1=55.0 FUFL		(Continued) 3054K+524K (25K PAYLOAD)	, c		
	5	16/4CR 1=55.0		24K (25K PA)	1080		
			STNEWOOD COMPONENTS	CELEBATTON	V I N II N C C		
	1 M M	דטרי ×		SO NOTIFICATION ADDOL	10.000	ZDDOT	11
	L 12:	M / SFC**2	FT/SEC**2	M/SEC**2	F1/8EC**2	M/SEC**2	FT/SEC * *2
				!!	1	•	
LIFT-0FF	ີ ແກຍ	4.155	13.632	600*-	- 029	.011	°037
	330°	4, 155	13.632		- 079	113	. U37
	1		150.5		070.0	2100	n n n
TALL TEST	116° a	1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	15,044	1007	1,073	.013	2 5 C 7 C 7 C 7 C 7 C 7 C 7 C 7 C 7 C 7 C
111 2111	12,600	787.1	15.706		2 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	M5 W	1.190
	15,000	. a a a	15,357	117	055	.727	2 . 387
1112	211, 000	13.00	17.008	610	061	1 . 103	3.617
END TILI	27,000	F. 184	17.008	n19	0=1	1.103	3 4617
	74 . GPB	7 2 2 Y	17.669	021	068	1.497	4.911
	24.033	5.573	18.295	023	4.00°-	2.056	6.744
	32.000	5.721	18.771	025	081	2.691	8.827
	36.000	5.827	19.117	027	_*047	3 4 3 9 3	11 -131
	40.100	5 858	19.218	029	ħ60°-	4.145	13.599
	44.0AB	5.795	19.015	- · n31	-*100	4 .928	16.168
	48.000	5.517	18.100	832	107	5.679	18.632
	52,000	5.103	15.741	45 (I = -	113	6.397	20.988
	56. EHL	4.602	15.098	03E	-,119	7 . 0.82	23,233.
	ຄວ.ຄາຕ	4.359	14.433	- 4038	126	7,931	26 •020
10 KMS.	62.660	4.375	14,353	040-	130	8 583	28, 159
	គម.ពលិត	4.761	14.305	n4n	132	8.920	29.265
•	58.060	4.314	14,154	- • U42	-,139	9,965	32,693
MIMIXAM	58° 585	4.312	14.147	042	139	10.019	32 872
and the second second second	72.000	4.274	14.022	ካ ቱ 🛭 ° –	- 1.45	11.074.	36,331
3 th KMC.	74° 1194	4.753	13.955	590*-	148	11.679	38.317
	76 . [.[1];	4.233	13.889	- . nu	151	12,243	4 D. 168
	ลา, แกก	4.177	13.704	- · n 48	157	13.458	44 .155
	84.660	4.052	13.294	050	1 ÷ 1 ÷ t	14.659	48.095
	44. HDU	3.861	12.668	25U°-	170	15.830	51 .934
	02.4446	3.624	11.891	ካኒ[] * -	176	16,975	55.691
	96,000	3.350	14) • 992	- . n 56	193	18.092	59 *358
	100.001	7.00.5	6.997	058	- 189	19.180	62,927
	100,000	2.716	8.910	1.059	195	יצר טר	26.33
	,	:	3 7 9 2	000	7	162.02	מפיקים

Table C-2. Trajectory Tables for the Mission with an Inclination of 55° and a Cargo of 11,339.807 kg (25,000 lbs)

MDC/HCR I=55.0 FUEL 3D64K+524K (25K PAYLOAD)

	i : :	3	APOLLO 13 ACCELERATION COMPONENTS	CELERATION	COMPONENTS		:
	E III	x8301 M/SFC**2	FT/SEC**2	YDUUI M/SEC**2	F1/SEC**2	Z0001 M/SEC**2	FT/SEC**2
	112.tilli	2.004	F.575	- • (16.3	207	22,244	72.980
	115,000	1.643	5.389	- 1165	213	23.731	76.216
	120.000	1.281	4.203	- 41167	219	24.209	79.425
	124,000	.921	3.021	690*-	225	25.180	R2 4612
	128.000	. 566	1.857	071	231	26.157	PE.818
	132,090	.219	.717	n72	238	27.146	89 • U 62
	136.000	2EU	4.8°-	N 7 4	n n 2 ° - ·	27.740	91.011
	140, 000	648.1	-2-784	- • N 7 E	642*-	27,923	91 •612
	146.000	-1.469	- 4.623	P.7 B.	-,255	78,084	02.138
	148,000	1.944	-6.377	080	263	29.724	92 .598
	152.000	-2.454	-8.052	081	267	28.346	93,000
	156,000	-7.943	1555 F	083	273	28.453	93,350
	160.000	-3.410	-11,189	1185	270	34° 28	93.654
: :	154,000	-3.859	-12.650	fi 87	-*285	28 4 62 5	93 4915
	168.000	-4,289	-14.072	σ: Θ (L * †	291	28.694	94.140
	172, năn	·- 4 . 703	-15.430	06U°-	297	28.752	94 -330
	176.000	-5,101	-16,736	092	302	28.800	94 489
	1 a G. BAB	- 5 . 4 84	-17.994	₩ U 94	308	78.841]	94 4621
	184.000	-5.854	-19.206	P.9F	314	28.873	727.46
	198,000	-6.211	-20.376	- • N97	320	78.898	94.810
	192.000	- F. 555	-21,5/15	660*-	326	28.917	94.871
	196.000	- 6.988	-22.597	101	-,331	28,930	94 .913
	107.441	-7.005	-22.982	102	333	28.933	426,40
SE PARATION	-197.44.1-	- 9 - 583	-31.439	- * 102	333	-4374	-1 .227
	200•000	-9.579	-31.427	103	337	187	-1.271
1 4 4 4	204" 000	-9.573	-31.409	104	343	408	-1 .340
	2117.441	-9.569	-31,394	10F	348	-*42E	-1.399
ORR IGNITION	207, 441	-8.573	-28.126	1116	- 4348	16,276	53 4397
BEGIN MIN-H	207-441	-6.085	-19,964	- 106	348	13.855	45.457
The second state of the second	208, 000	160.3-	-19.993	106	645	13.883	45,546
	216.000	-F.724	-20.421	110	360	14.280	46.851
	224,000	-6.365	-20.883	113	-4371	14.697	48.220
	232 - 000	-F.517	-21.382	117	- 383	15.136	49.658
	240" 000	-6.681	-21,920	120	394	15.597	. 51 - 172

Table C-2. Trajectory Tables for the Mission with an Inclination of $55\,^\circ$ and a Cargo of 11,339.807 kg (25,000 lbs)

Continued)

			(Continued)	(pən			
	7	™JC/HCR I=55+13 FUFL 3N64K+524K (25K PAYLO⊅DN	FUEL 3064K+5	24K (25K PA)	/L040I)		
			APOLLO 13 ACCELERATION COMPONENTS	NOT LAGGRESS	SINGNOOMOD		
	6: № L	XFDOT		10004	10	ZODOT	1
	C u	C**3U5/%	2**538714	M/SEC **2	F1/SEC**2	M/SEC##2	F1/SEC**2
	243, 11411	00 0 0 10 1	-22.501	124	406	16.084	52 . 768
	256.000	-7.150	-23.128	127	417	16.598	54.454
	254,0000	-7.256	-23.8115	131	-4428	17.142	56 -239
	272.600	-7.47º	-24.E3F	134	1) h h • -	17,719	58.133
	247, 000	-7-713	-25.326	137	453	19.732	60.146
	288.000	- 7 • 9 R G	-76.181	141	462	18.986	62.291
	298, 11011	-3.762.	-27.107	144	473	19.585	54 .594
	304.600	- 9 - 5F o	-78,112	148	494	20.434	67.041
	312,000	2116 ° 6 -	-29.245	151	9c h	21.239	69.683
	320 DEB	-0.264	-305 JF-	154	507	22.108	72.532
	328, 0.1d	195.61	-31.595	- 158	9.13	73.047	75.515
	336.000	- 1ft # fi94	-33-118	16]	579	24.069	78,965
	3 4 4 a 13 (3 (1	-10.571	- 34.591	165	540	25.183	82.620
	352.000	-11.096	-36-405	168	1.553	26.404	86.626
	35.0° (100)	-11.579	- 38.312	171	552	27.748	91 .037
	368.606	-12,177	1156.95-	- 175	573	27.692	90.854
	176,000	-12.670	-41.558	178	ا «بې ع	27.559	90 .416
2	384.000	-13,162	-43.183	181	1,030	27.414	0,45 68
	132,000	-13.553	-44.793	184	605	27.257	89,427
	400.000	-14,142	-4F.39F	381	615	27.1189	88.875
INJECTION	403.136	-14.333	-47.073	183	F2U	27.020	88 .549
	4113.136	-14.333	-47 . C23	000	670	27.020	88.649

Trajectory Tables for the Mission with an Inclination of 55° and a Cargo of 11,339.807 kg (25,000 lbs) Table C-2.

		(concluded)		
		I = 55°		
R08(ROPOT 50X 100 HCR SHUTTLE	HUTTLE	í Í	
	RANGE	•12318100+07 M	RANGE ANGLE .12048119+02 DEG	OZ DEG
INERTIAL .78764173+D4 M/SFC WELOCITY	RADIUS	.64707620+07 M	FLIGHTE0374453-05 PATH ANGLE	. 930 50-
INCL .55000002+32 DEG	DES.	.158746ND+O3 DEG	FLIGHT .37976775+02	,02 DEG
GDLA1 .36944769+D2 DEG	ECL AT	.36760103+02 DEG	LONG72035859+D2 DEG	DZ DEG
INFRITAL45720524+02 DEG	12			
WEIGHT 31.7851.25+06.LBS	ជ	61163367+D8 M**2/SEC**2	2	
KEPLERIAN ORBITAL PARAMETERS	P C P C C C C C C C C C C C C C C C C C			
ECHIRICA71000442-02	APOGEE RADIUS	•65632961+D7 M	PERIGEE .64707539+07 RADIUS	ν ČO.
	<u></u>	.49994027+62 NM		

Table C-3. Trajectory Tables for the Mission with an Inclination of 28.5° and a Cargo of 29.483.504 kg (65.000 lbs)

INFRIIOL VE 4 DR. 933 4 DR. 933 7 DR. 935 5 DR. 5 GI 5 DR. 5 GI 5 DR. 6 GI 6 DR. 930 7 DR. 933 7 DR. 933 7 DR. 933 7 DR. 933 7 DR. 6 DR. 933 8 DR. 6 DR. 933 8 DR. 6 DR. 933 9 DR. 933 9 DR. 934 9 DR. 934 9 DR. 935 9 DR. 9				
## ODD # ODB # 933 ## ODD # ODB # 933 ## ODD # ODB # 933 ## ODB # ODB # 933 ## ODB # ODB # 933 ## ODB ### ODB ## ODB ## ODB ## ODB ## ODB ## ODB ## ODB ### ODB ### ODB ### OD		RELATIVE VELOCITY M/SEC FT/SEC	GAMMA S Deg	GAMMA R Deg
4,000 408,933- 4,000 4109,287 8,000 417,414 12,800 413,073 23,000 425,586 24,000 464,310 36,000 464,310 36,000 464,310 36,000 552,526 57,000 567,561 44,000 567,561 48,000 567,561 48,000 567,30 661,736 68,000 567,330 68,000 57,330 68,000 57,330 68,000 57,330 68,000 57,330 68,000 57,330 68,000 57,330 68,000 57,330 68,000 57,330 68,000 57,330 68,000 57,330 68,000 57,330 68,000 57,330 68,000 57,330		000.	000*	.218
9,000 410,414 12,000 417,079 16,010 417,079 16,000 425,586 20,000 425,586 24,000 425,586 44,000 483,748 48,000 532,579 48,000 532,579 48,000 532,579 57,000 532,579 57,000 532,579 66,000 532,579 68,604 745,493 72,000 738,861 74,399 812,684 76,000 832,739 88,604 745,493 76,000 832,739	.643 .000 .804 17.068	000° 55.996	000°	.218 89.839
8. UPD 417. 419 112. NOO 413. 079 16. NHH 425. 586 20. NOO 532. 579 48. NOO 532. 579 48. NOO 532. 579 48. NOO 532. 579 58. NOO 543. 157		114.625	4 .833	89.837
12, HOO 413,079 15, PH 418,1108 23, 000 425,586 24, DOO 425,586 24, DOO 425,586 32, DOO 483,403 36,100 483,748 40,000 552,573 48,000 561,462 56,000 567,370 60,000 567,370 60,000 567,493 AXIMUM 68,600 AXIMUM 68,000 783,861 AXIMUM 68,000 783,861 AXIMUM 68,600 785,684 76,000 885,810 885,810 885,810 885,810 885,810 885,810 885,810 885,810		114.625	4,883	89.837
TILT 20,000 425,586 71LT 20,000 425,586 74,000 425,586 72,000 483,748 40,000 532,748 40,000 532,579 48,000 561,462 56,000 567,30 660,000 567,30 660,000 567,30 67,000 57,162 68,000 567,30 68,000 567,30 68,000 567,30 68,000 567,30 68,000 567,30 68,000 567,30 68,000 567,30 68,000 567,30 68,000 567,30 68,000 567,30 68,000 738,950 68,000 738,950	246 53.619	175,916	7.458	89.313
TILT 20,000 925,586 74,000 935,903 72,000 945,940 36,000 948,710 84,000 532,579 94,000 552,579 94,000 552,573 66,000 557,746 67,000 557,746 64,000 557,746 64,000 532,739 68,000 78,950 68,000 78,950 68,000 78,950 68,000 78,950 68,000 78,950		306.974	12,672	86.182
74,000 435,403 78,000 448,235 32,000 448,235 44,000 50.561 44,000 552,573 66,000 567,30 67,000 592,522 56,000 592,522 56,000 592,522 56,000 592,522 56,000 592,523 64,000 592,523 64,000 592,523 64,000 592,523 64,000 783,861 68,604 745,493 68,000 783,861 68,000 885,810 84,000 943,157 88,000 943,157		306.974	12,672	86 ,182
ZR.UUU 448.235 32.000 464.310 36.100 464.310 40.000 507.561 44.000 552.579 48.000 561.462 52.000 592.522 56.000 592.522 56.000 592.522 56.000 592.522 56.000 592.522 57.000 738.950 4XIMIM 68.600 745.493 72.000 745.493 72.000 745.493 72.000 745.493 72.000 745.493 74.399 80.000 885.810 84.000 943.157	-	377.214	15.238	84 . 47 1
72,000 464,310 36,000 483,748 40,000 557,551 48,000 561,462 57,000 567,330 60,000 67,330 60,000 67,330 60,000 67,330 61,462 62,000 67,330 68,000 783,861 72,000 783,861 72,000 783,861 72,000 783,861 72,000 783,861 72,000 783,861 72,000 783,861 72,000 783,861		451.038	17,703	82 .491
## 100 ##		528.720	20 .005	80275
## 00,000 532,579 ## 000 551,462 52,000 551,462 55,000 552,552 56,000 657,330 60,000 657,748 68,000 745,493 AXIMUM 68,600 745,493 72,000 745,493 74,399 812,684 74,399 812,684 74,000 943,157 84,000 943,157		F10.466	22,089	77,860
##, ## ## ## ## ## ## ## ## ## ## ## ##		696 4 21	23.909	75 . 279
##, DD01 561,462 52,000 592,522 56,000 665,330 60,000 660,030 61,000 788,950 64,000 788,950 AXIMUM 68,604 745,493 72,000 783,861 74,399 812,684 76,000 885,810 84,000 993,157 88,000 993,157		786.260	25,424	72 .564
52,000 592,522 56,000 655,330 60,000 660,030 61,000 687,162 64,000 788,950 AXIMIM 68,600 745,493 72,000 745,493 72,000 743,493 72,000 743,493 76,000 885,810 84,000 943,157 88,000 504,600		879.259	26 .603	69 . 746
KMS. 626.000 665.330 60.000 661.030 67.162 69.000 738.950 AXIMUM 68.604 745.493 72.000 745.493 72.000 745.493 72.000 745.493 72.000 745.493 74.000 885.810 885.810	971 296.736	973.543	27.417	66 .847
KMS. 52,913 687,162 E9,910 687,162 E97,163 68,000 738,950 AXIMUM 68,600 745,493 72,000 745,493 76,000 882,739 80,000 885,810 84,000 943,157		1068 .583	27.883	63.882
KMS. 62,913 687,1462 Eq. DDB E97,748 68,000 788,950 AXIMUM 68,604 745,493 72,000 783,861 74,399 812,684 76,000 885,810 80,000 943,157 88,000 1004,600		1166.146	28,061	698-09
E9.000 E97.748 68.000 738.950 68.604 745.493 72.000 783.861 74.399 812.684 76.000 885.810 84.000 943.157		1241,936	28.066	58 658
68,000 738,950 68,400 745,493 72,000 783,861 74,399 812,484 76,000 832,739 80,000 845,810 84,000 1004,600		1271 .526	28.046	57 833
MAXIMUM 68.604 745.493 72.000 783.861 74.399 812.684 76.001 832.739 80.001 885.810 84.000 943.157		1387.058	27.876	54.807
72,000 783,861 74,399 812,684 76,000 832,739 80,000 885,810 84,000 1004,600	-	1405.480	27,837	54 , 353
74,399 812,684 76,000 832,739 80,000 885,810 84,000 943,157 88,000 1004,600		1514 .049	27.4568	51 4822
832.739 885.810 943.157 1004.600		1596 -278	27,326	50°064
885.810 943.157 1004.600		1653.850	27.143	48.907
943.157	.200 550.959	1807 e 09	26.620	46 ,086
1004.600		1905.904	2.6 •011	43 .376
		2158.341	25 , 329	40 .792
45°010 1010 105	3510.573 717.717	2354 4714	24.45.86	38,338
_	.980 781 .766	2564 848	23.796	36 .018
1212 461		2788.556	22 • 972	33.931
_		3025.640	22,125	277.12

Trajectory Tables for the Mission with an Inclination of 28.5° and a Cargo of 29,483.504 kg (65,000 $1\rm b\bar{s}$) Table C-3.

(Continued)

MDC/HCR I=28.5 FUEL 3064K+524K (65K PAYLOAD)

	SE6-	INERITAL M/SEC	INERTIAL VELOCITY 4/SEC FT/SEC F	RELATIVE M/SEC	VELOCIIY FT/SEC	GAMMA S DEG	6878 B B B B B B B B B B B B B B B B B B
	112,000	1453.843	4769.826	1078-535	3538 • 501	20.401	28.027
į	116.000	1541-467	5057.307	1162.546	3814.128.	19.541	26 .327
	120,000	1632.691	5356,598	1250.462	4102.565	18.690	24 . 733
1	124.000	1727 539	5667-780	1342.289	4MD3 #835	1.7 . 854.	23 .240.
	128, 000	1826.060	5991.012	1438.058	4718-037	17.037	21.841
	132.000	1928,338	6326.569	15372833	5045.382	16,241	20 • 5 31
	135, 000	2034.292	6574.187	1641.513	5385.542	15.470	19.303
	140.000	2141,689	7026.540	1.746.843	5731+112	14.720	18.152
	144,000	2249.582	7380.519	1852.854	6078-917	13.992	17.071
	148.000	2357,988	7736-183	1959.548	6428.962	13.286	16.054
	152,000	2466.886	8093.458	2066.887	6781 4125	12.603	15.095
	156,000	2576,255	8452.239	2174.838	7135 295	11.944	14.191
	160,000	2686.075	8812.581	2283.368	7491.365	11.308	13.336
	164,000	2796.327	9174 . 303	2392 . 448	7849,237	10.695	12 .528
	168,000	2906.995	9537 • 385	2502 .048	8208.818	10 • 105	11.762
	172.000	3018.060	9901 . 771	2612.143.	8570.022	9.537	11 .037
	176.000	3129.506	10267.410	2722.707	8932-765	8 . 9 9 2	10.349
	180.000	3241,318	10634.247	2833.717	9296.972	8.467	969°6
	184.000	3353.480	11002.232	2945.151	9662.568	7.964	9.077
	188.000	3465.978.	11371.318	3056 987	10029.485	7.481	88 4 88
	192,000	3578.797	11741.459	3169.206	10397.658	7.017	7.929
	196.000	3691,923	12112.609	32.81 . 789	10767.024	6.573	7 , 3 9.8
	195, 988	3719,908	12204.423	3319.648	10858.424	994.9	7.271
SEP ARATION	196.988	3719,908	12204-423	3309 .648	10858.424	994-9	7.271
	200, 000	3715.743	12194.038	3306.103	10846.793	6.122	6.886
	204.000	3712,808	12181 - 129	3301695	10832.332	5.665	E. #373
	206, 988	3710.069	12172-143	3298,626	10822 + 263	5 .323	5 * 989
ORR IGNITION	205-4988	37,10,069	12172-143	3298.626	10822,263	5 . 323	5.4989
BEGIN MIN-H	205,988	3710.069	12172-143	3298.625	10822-262	5 * 323	5 .989
	208.000	3727,551	12216.374	3312 .031	10866 .242	5 .249	5.904
	216,000	3832,239	12572.964	3420-164	11221.009	4 °689	5 . 256
	224-000	3944.791	12942.227	3532.241	11588.717	4.166	4.654
•	232, 000	4061.342	13324.612	3648,390	11969 4784	3.678	4 • 095

Trajectory Tables for the Mission with an Inclination of 28,5° Table C-3,

Table C-3.	raject ar	ctory lables and a Cargo	irajectory labies for the Mission with an inclination of 28.5° and a Cargo of 29,483.504 kg (65,000 lbs)	ssion with 04 kg (65,	with an Inclina (65,000 lbs)	ition of	28.5	
			(Continued)	(pən				
	Σ	MDC/HCR I=28.5	.5. FUEL 3064K+524K	24K (65K PAYLOAD).	Y L O A D).			
	The second secon		•					
	TIME	INFRIAL	VFL OCITY	RELATIV	RELATIVE VELOCITY	GAMMAS	GAMMA R	
	VE C	MISEC	FT/SEC	MISEC	FT/SEC	DEG	DEG	
and a second of the discourance characters are	248,000	4307.071	14130.810	3893.499	12773.946	2.804	3.102	
	255, 000	4436.611	14555,810	4022 - 806	131984181	2 .416	2 .56 4	
	264.000	4570.877	14996,315	4156.881	13638 * DE2	2 . 058	2 .263	
į	277, 000	4710.186	15453*105	4295 a957	14094-346	1 -731		
	280.000	4854.562	15927.042	4440.792	14567。887	1.433	1 .567	
The second secon	28 8, 00th	-5084 -541-	16419-097	4590-177	- 15059 634	1-163	1.268	
	296,000	5160,371	16930,351	4745.936	15570 .657	.921	1 .002	
	304, 000	5322.422	17462.015	4907.938	16102-159	90t°	*766	
	312.000	5491,110	18015.451	5076.593	16655 488	.517	.560	
	320, 000	5665,901	18592.194	5252 365	17232 -169	15 S. S.	.382	
	328.000	5850,324	19193,975	5435.781	17833.928	°217	°233	
	336, 00B	6041.979	19822 4766	5627*440	18462-729			
	344,0170	F242,552	20480.813	5828 . 021	19120.804	20° 1	*U.16	
	360,000	5673,7ft2	21895.348	6259,204	70535.446	060		
	364, 000	6905 648	22556326	6491-171	21296 4493	107	114	
	376.000	7140.658	23427.355	672E . 202	22067,591	107	113	
The second section of the second section of the second section of	384,000	7375 . 791	74198.789	6961 .355	22833-090	00 O	095	
	392.000	7611.000	24970.471	7196.584	23610.839	057	- "060	
1	400, 000	7846 .245	25742.274	7431 .847	24382 "698	007	- *008	
INJECTION	401.026	7876,419	25841,270	7462 * 023	24481 .702	000°-	000°-	
	401.026	7876.419	25841,270	7462.023	24481 .702	-*000	- 0000	

Table C-3. Trajectory Tables for the Mission with an Inclination of 28.5° and a Cargo of 29,483.504 kg (65,000 lbs)

	MDC/HCR I328.5	THE CHARLES THE CH	THE STATE OF STREET, AND ADDRESS OF THE STREET, STREET				
	en addition in similarity design, desprise paper : communication			The same of the sa	:		
Communication of the communica	TIME	MASS	WEIGHT	THRUST	IST	LONGIT. A	LONGIT. ACCELERATION
Address and the same they be to be common addresses.	-S EC-	¥6<	581	2	. 581	M/(SEC)S0	FT/(SEC) S0
3300 231	000	2103150.6	4636653.3	29358262 .D	6599999	13.633	45.71
	000	2103150-6	4636653 3	2.9358267 aD	E299999.9	13.93	45.71
	4.000	2073145.3	4570503.0	29369544.5	6602536.3	14.16	46.45
	8.000	2043140-0	4504352.6	2.9404076 .0	6610299.3	14 .36	47 411
BEGIN TILT	8° 000	2043140.0	4504352*6	0.97040465	6610299.3	14 .36	47.13
	12,000	2013134.2	4438202.2	29462154.5	6623355.9	14.56	47.78
	16.000	1983129 4	4372051.9	29543709.7	6641690.2	14.77	7 h 8 h
	20,000	1953124 .1	4305931.6	29647921 °D	6.665117 +8	14.99	0 T 0 D 1
END TILI	20.000	1953124 . 1	4305901.6	29647921.0	6665117.8	00° 5'	49.19
	24,000	1923118.8	4239751.2	297.73483.7	5693345*4	15 423	ລະຄ ຍຸດ ຄຸດ ຄຸດ ຄຸດ ຄຸດ ຄຸດ ຄຸດ ຄຸດ ຄຸດ ຄຸດ ຄ
	28.000	1893113.5	4173600.9	29918405 00	6 /25 92 4 • 6 6 7 6 9 5 5 1 - Cl	15.47	51.55
While the first control of the	36.000	1833102.9	4041300.2	30255032.2	6801601.9	15,95	52.34
•	40.000	1803097.7	3975149.9	30439733.7	6843124 .4	16.16	53.02
•	44.000	1773092 . 4	3908999.5	30630034.5	6 885 905 .7	16 • 32	53 . 54
	48.000	1743087.1	384284942	30821626.5	6928977 . 3	16 • 3.1.	53 .53
	52.000	1713081.8	3776698.8	31010103.0	6971348.5	16.20	53,15
	56,000	1683076.5	3710548.5	31191310.2	7012085 .6	1.6 .03	52.61
	60.000	1653071.2	3644398.2	31361827.7	7050419.4	16.21	53.18
10 KMS.	62.913	1631218.6	35 96221 43	31477819.5	7076495.4	16.53	54°54
	64.000	1623065,9	3578247.8	31519190.2	7085795.9	16.66	54 .67
	5.8. D.D.D	1593060.6	3512097.5	31661934 .0	7117886 • 0	17,19	56.41
O MINIMIN	68°F04	1588526,1	3502100.7	31682088.2	7122416.8	17.28	56.70
	72.000	1563055.3	3445947.2	31788115.5	714625247	17.81	ສຸ ສຸ ແ
TO KES.	74.399	1545059,3	3406272.7	31855371.2	7161372.4	18,23	59.80
	76,000	1533050.0	3379796.8	31896667.5	7170656 * 2	18 252	60,75
	80.000	1503044,8	3313646.5	31987273.5	7191025.2	19.29	63 . 28
The state of the s	94.000	1473039.5	3247496.1	32060345.2	7207452.4	20.05	65 °77
	88.000	144303402	3181345.8	32116793.2	7220142.4	20.79	68 . 2 1
	92,000	1413028.9	3115195.5	32160364 .0	7229937 .5	21 .52	70.61
	000 • 96	1383023.6	3049045.1	32193614.0	7237412 .4	22.25	72 .99
	3 00. 000	1353018.3	2982894.8	32218803.2	7243075 .2	22 • 97	75.35
	104.000	0 2102621	1010704	0 0077565	1 7175 1105		27 60
			T 0 T T 1 C T 1	3,007,007	T * C T C / E//	2000	0 20 / 1

Table C-3. Trajectory Tables for the Mission with an Inclination of 28.5° and a Cargo of 29,483.504 kg (65,000 lbs)

(Continued)

MOC/HCR I=28.5 FUFL 3064K+524K (65K PAYLOAD)

	SEC	KGS)	z	L8S	A / 1 SE L / SE	F. I. S. B. C. J. S. W.
	112,000	1253002.4	2784443.7	32262830 .2	7252972 .8	25.07	82,25
	116,000	1737997.2	2718293.4	32270799 \$5	7254764.4	25.79	84.60
	c	1202991.9	7	2276715	7256094 2	26 .52	87 .01
	124.000	1172986.6	2585992.7	32281099.5	7257079 • 9	27.27	89 . 45
	129,000	1142981 * 3.	2519842.4	32284349.1	7257810 • 4	58°04	91,99
	132,000	1112976.0	45369	32286759.2	7258352.2	28.B4	94 . 62
	L.	1083016.9	7543	32012493.7	7196694 .9	29.62	ທ
	140,000	1053674.4	2322954.3	31122811.2	6996696 a4	29°42	96.52
	144,000	1025155.9	0081,	30262036 • 5	6803176 .5	29.42	96 • 52
	148,000	997425.3	2198946.3	29428650.0	E615823 .7	29.42	.96 .52
	152, 000	970457.5	2139492.6	28620793.2	6434210-3	29.45	96 • 52
	156.000	944229.7	2681670°1.	27836780.7	6257957.3	29.42	96.52
	ć	918719.9	2025470.6	27076286.2	6086991 • 3	29°42	96 °52
	164.000	893905.7	1970724.8	26339230-7	5921294 .7	29 a 42	96.252
	158, 000	869766.9	1917507.7	25622945 .0	5760267.2	24.65	36 °52
	172.000	846284 , 3	1865737 .6	24926780.2	5603763.1	24*62.	96 . 52
	175, 098	823439*6	1815373.7	24250109.2	5451641 .4	24.62	3€ «52
	180 . 000	801215.0	1766376 .6	23592330.5	5303766 -9	29.42	96.52
	194, 000	779593 .0	1713708.3	22952863 an	5160008.9	29.42	96 452
	188.000	758556,9	1672331 .6	22331145 an	5020241 .1	29.42	
	192,000	739090 4	1627210.8	21726635 47	4884342•1	л° б	36 °52
	196,000	718177.9	1583311.2	3811	M	ħ° 6	œ
	196,998	713343.6	1572653 44	201996147.2	4720121 °7	29.42	96 -52
SEPARATION	196.988	388952,5	857493.4	o.		.00	00*
	237.000	388952.5	51493	0.	c.	00.	00°
	304°600	388952,5	857493.4	G.	0.	.00°	00
	206.998	388952.5	857492.4	e,	Ç	00.	00°
ORB IGNITION	206.988	თ	857493.4	E389081 .7	1436322 .7	16.43	53 .89
BEGIN MIN-H	206,988	388952.5		5613531.1	1261972.0	} tr " tr 3	47.35
***	208.000	387687.8	854705,3	5613531.1	12E1972 .0	14.48	47.5D
	216, 000	776		5613531+1	1261972 0	14 .86	48.76
	4	367695.8	1 116	5613531.1		15.27	50 ° 03
	232, 000	357599.8	788593.1	5613531 #1	61972	15.69	51 .49
	240,000	347703,8	665	5613531 .1	1261972 °C	16.14	55.97

Table C-3. Trajectory Tables for the Mission with an Inclination of 28.5° and a Cargo of 29,483.504 kg (65,000 lbs)

MDC/HCR I=28.5 FUEL 3D64K+524K (65K PAYLOAD)

	E I	2.00	WEIGHT	THRUS	-	LONGIT. AC	ACCELERATION
-	SEC	KGS	1.85	Z	LBS	MZISECISO	FT/(SEC) 50
	248.000	337707.8	744518.3	5613531.1	1261972.0	16.62	54.54
	256 000	327711.8	722480-9	5613531 .1	1261972 an	17.13	5.6 • 20
,	264,000	317715.8	700443.5	5613531.1	1261972.0	17.67	57.97
	27.2 000	307719.8	E78405.1	5613531 * 1.	1261972.0	18 .24	59.85
	280,000	297723.8	656368.7	5613531.1	1261972.0	18.85	61.86
	288 000	287727.8	634331.3	5613531.1	1251972.0	19.51	64.01
	296,000	277731.8	612293.9	5613531.1	1,261972.0	20.21	66.31
	304 000	757735.8	590256.5	5613531.1	1261972.0	20 • 97	68.79
	312,000	257739 8	568219.1	5613531	1261972.0	21.78	71.46
	320 000	247743.8	546181.7	561,3531.1	1261972.0	22.66	74 . 34
	328,000	237747.8	524144.3	5613531 .1	1261972.0	23.61	77.46
	336, 000	227751.8	502106.9	5613531.1	1261972.0	24 465	80°86
	344.000	217755 B	480069.5	5613531.1	1261972 .D	25,78	84.58
	352, 000	207759.9	458032.1	5613531.1	1251972.0	27 +02	88.65
	360.000	197763.9	435994.7	5613531.1	1261972 .D	28,39	93 . 13
	358.000	187792 . 3	414011,2	5524840.6	1242033.6	29.42	96 .52
	376.000	178207.7	3928.80.8	5242862.8	1178642.5	29.42	96 .52
-	384.000	159112.1	372828.4	1.075270.1	1118485.2	29.42	96 .52
	392.000	160480.7	353799.5	4721335.2	1061398.4	24°62	96 .52
	400,000	152289.9	335741.7	4480360.9	1007225.2	29.42	96 .52
INJECTION	401.026	151270.0	333493.4	4450356.8	1000480.0	29.42	96 .52

Table C-3. Trajectory Tables for the Mission with an Inclination of 28.5° and a Cargo of 29,483.504 kg (65,000 lbs)

			and the second s	A PARTY OF THE PAR		ļ
78 T (10 to Laboratoria)	TMF	ALTI	ALTITUDE	RAD	RADIUS	INCL
	SEC	æ	ii.	***	- L	DEG
LIFT-0FF	000	61.1	9	6373318.44	20909837.2	28.3698
:	000*	-19	: :: :: ::	6373318-44	20 90 983 7 2	28.3698
	000.4	33.69	110.5	6373352.31	2.84890802	28.3698
BEGIN TILL	. 000 . A	137.44	6,054	6373456.06	20910288 .7	28,3698
	12, 400	314-19	1030-8	6373632-81	20910868-7	28,3698
	16.000	567.37	1861,5	E373886.00	20911699.2	28.3698
;	50,000	999.94	2952,6	6374218-56	20912790-5	28.3698
END TILT	20.000	499,94	2952 °6	6374218.56	20912790.5	28°3698
	24.000	1315,25	4335°3	6374633.87	20914153-0	28,3698
	28.000	1816.50	3557 300 300 300 300	F3/5155°12	C. 55151605	78 25 44 9
	36.000	3087.87	10130.8	6376406.50	20919968 .7	28.3702
	40,046	3862 019	12571 2	£377180.87	20922509-2	28 - 3706
	44.000	4730.19	15519.Q	6378048.87	20925357 .0	28,3713
	48,000	5690 .69	18670 2	6379009 437	20928508-2	28 3122
	22 • 000	6739.69	22111.8	6380058.44	20931950 .0	28,3735
,	5.6~000	7870.69	25822.5	6781189.56	20935661-2	28 3751
	60.000	9076.94	29780.0	6382395。81	20939618 .7	28,3771
FO.KMS.	57, 913	3999 894	32808 .2.	6383318 487	20942647 "0	28 3787
	64.000	10354.00	3.5969.8	6 18 36 /Z . W4	/ 8085 b602	28.5794
MIMIM	68. FD4	11910.56	39076.6	6385779,69	2072552	78.3825
	5	13117.50	43036.4	6386436 275	20952876 "2	28 \$3851
SAX PC	74.399	14000,00	45931.8	E387319.31	Z0955771 .7	28.3870
,	78.000	14502 .69	4790941	6387922 *D6	20957749.5	28 23883
	90.000	16156,19	53005.9	6389475.75	20962846 .7	28.3918
	8 4° 000	17777.12	58323.9	6391096 #87	20968165.5	28 *3 95 5
	88.000	19464.00	63858.3	6392784.00	20973700.7	28,3993
* Trees - Co. C.	92000	21.21.4.00	E 95.99 7	6394534 25	20979443.0	28 40131
	96.000	23023.81	75537 04	6396344.37	20985381.7	28.4070
	.100,000	24889.62	816.58 *9	6398210.56	20991504.2	28.4107
	104.000	26807,25	87950.3	6400128.56	0.1977905	28.4144
						7 7 8 7 4

Trajectory Tables for the Mission with an Inclination of 28.5° and a Cargo of 29,483.504 kg (65,000 lbs) Table C-3.

FEC. HE TIME FT TIME FT TIME FT TIME FEC. HE TITUDE FT TIME TO THE STATE TO THE STA			
112.000 30779.00 112.000 30779.00 120.000 37823.56 120.000 34901.00 124.000 39135.31 132.000 43445.81 140.000 43446.81 140.000 43446.81 140.000 43446.81 150.000 6226.19 150.000 6226.69 150.000 64510.75 164.000 64530.12 180.000 64530.12 180.000 7365.12 196.000 7366.00 196.98 7488.00 196.98 77889.00	RADIUS		INCL
112,000 30779,00 116,000 32823,56 120,000 34901,00 124,000 3785,31 136,000 4146,81 140,000 47796,00 156,000 67266,00 156,000 67266,69 156,000 52126,69 156,000 6847,50 156,000 6847,50 168,000 6734,37 175,000 6734,37 175,000 70173,06 188,000 70173,06 196,988 77889,00 70N 206,988 77889,00	-		UE G
116,000 32823,56. 120,000 34901,000 124,000 39135,31 132,000 43446,81 140,000 43446,81 144,000 43446,81 152,000 43446,81 156,000 52126,60 156,000 52126,60 156,000 52126,60 156,000 52126,60 156,000 52126,60 156,000 5337,50 156,000 64530,12 188,000 73665,12 196,000 73665,12 196,000 73665,12 196,000 73665,12 196,988 74889,00 206,988 77889,00		21010831-0	28.4214
120,000 34901,00 124,000 33016,31 132,000 43445,31 136,000 43746,81 140,000 47796,00 152,000 52126,69 156,000 6736,75 156,000 6837,50 158,000 6837,31 172,000 6837,31 172,000 6834,31 173,000 70173,06 194,000 70173,06 196,988 74889,00 206,988 77889,00		21017540.7	28.4247
124.000 37006.31 172.000 43146.81 136.000 43446.81 140.000 47796.00 140.000 47796.00 152.000 52126.69 156.000 52126.69 156.000 6834.37 172.000 6634.75 180.000 6653.31 176.000 6253.31 176.000 6730.12 180.000 70173.06 196.988 77889.00 0 206.988 77889.00		21024358.2	28 .4279
128,000 39135,31 132,000 41283,37 136,000 45246,81 144,000 4736,00 148,000 52126,69 152,000 52126,69 156,000 53126,69 158,000 60534,37 172,000 6253,31 172,000 6253,31 172,000 6734,37 172,000 70173,06 194,000 70173,06 196,988 77889,00 70N 206,988 77889,00	.8. 6410330.44	21031267.7	28.4309
136,000 43446,81 140,000 47796,00 144,000 47796,00 155,000 52126,69 156,000 5838,75 164,000 60534,37 176,000 60534,37 176,000 6253,31 176,000 6481,25 188,000 70173,06 196,988 74889,00 206,988 77889,00	.7 6412460.19	21038255.0	28.4338
140.000 45620.19 144.000 47796.00 152.000 52126.69 156.000 5387.50 164.000 60534.37 176.000 64530.12 188.000 64533.31 188.000 70173.06 196.988 77889.00 0 206.988 77889.00		21052406.2	28.4392
144.000 47796.00 148.000 52126.69 156.000 52387.50 164.000 6534.37 172.000 6534.37 172.000 6534.37 172.000 7553.31 172.000 70173.06 188.000 70173.06 196.988 74889.00 206.988 77889.00		21059539 . 7	28.4417
148.000 49967.00 152.000 52126.69 156.000 54268.75 160.000 5847.50 164.000 60534.37 172.000 6253.31 176.000 64530.12 180.000 70173.06 192.000 70173.06 196.988 7489.00 206.988 77889.00	w	21066681.5	28.4440
152,000 52126,69 156,000 54268,75 150,000 5847,50 158,000 60534,37 172,000 6253,31 176,000 64530,12 180,000 70173,06 192,000 70173,06 196,988 77889,00 206,988 77889,00 206,988 77889,00		21073808.0	28.4462
156.000 54268.75 150.000 55387.50 154.000 69534.37 172.000 69534.37 175.000 64530.12 180.000 64530.12 180.000 71943.31 194.000 71947.75 196.000 7365.12 196.000 7365.12 196.000 7365.00 206.988 77889.00 H 206.988 77889.00		21080897.5	28 4482
160, 000 56387,50 164,000 60534,37 158,000 60534,37 172,000 64533,31 176,000 64451,25 184,000 68343,31 188,000 70173,06 192,000 70173,06 196,000 70173,06 196,988 74889,00 0M 206,988 77889,00	T	21087929.7	. 28. 4502
164.000 58472,75. 158.000 60534.37 172.000 64530.12 180.000 64812.25 184.000 68343.31 188.000 70173.06 192.000 70173.06 196.000 70173.06 196.988 75306.06 204.000 76829.19 206.988 77889.00 H 206.988 77889.00		21094885.5	28 4520
168,000 60534,37 172,000 62553,31 176,000 64510,12 180,000 68343,31 188,000 70173,06 196,000 70173,06 196,000 70173,06 196,98 77889,00 206,988 77889,00 H 206,988 77889,00	7	21101748.0	28.4537
172.000 6253.31 176.000 64530.12 180.000 68343.31 188.000 70173.06 192.000 70173.06 196.000 7047.75 196.488 74080.12 200.000 75865.12 200.000 7582.19 206.988 77889.00 H 206.988 77889.00		21108501.0	28 04554
146,000 64550,12 180,000 68343,31 188,000 70173,05 195,000 71947,75 196,000 73665,12 196,988 74080,12 206,988 77889,00 H 206,988 77889,00	-	21115130.2	28.4569
184.000 68343.31 188.000 70173.05 195.000 71947.75 196.000 73665.12 196.988 7080.12 200.000 7580.19 206.988 77889.00 H 206.988 77889.00	*U 843/8/U.44	2112112240	20.43.04
188.000 70173.06 192.000 71947.75 196.000 73665.12 196.988 74080.12 200.000 75306.06 204.000 76829.19 206.988 77889.00 H 206.988 77889.00		21134145.5	28.4612
195.000 71947.75 196.000 73665.12 196.988 74080.12 200.000 75306.06 204.000 76829.19 206.988 77889.00 H 206.988 77889.00	.6 6443519.50	21140155 7	28.4625
196.000 73665.12 196.988 74080.12 200.000 75306.06 204.000 76829.19 206.988 77889.00 H 206.988 77889.00		21145985.7	28 4638
196.988 74080.12 196.988 74080.12 200.000 75306.06 206.988 77889.00 H 206.988 77889.00 H 206.998 77889.00	.5 6447016.31	21151628.2	28.4650
196.988 74080,12 200.000 75306.06 204.000 76829.19 206.988 77889.00 H 206.988 77889.00		21.152991 .7	28 4653
200,000 75306,06 204,000 76829,19 206,988 77889,00 206,988 77889,00 206,988 77889,00		21152991 .7	28 . 4653
204.000 76829.19 206.988 77889.00 206.988 77889.00 206.988 77889.00		21157020.0	œ
206.988 77889.00 206.988 77889.00 206.988 77889.00 208.988 77889.00	·	21162025 .7	8 . 465
206.988 77889.00 206.988 77889.00 208.000 7824.87		2116550942	8 4 65
EGIN MIN-H 206,988 77889,00	_	21165509 * 2	8.465
78744 87		21165509.2	28.4655
and the second s	.1 6451593.81	21166646 .2	28.4657
80844.87		2117522742	œ
83237.87.	-	21183098 .0	28.4682
232,000 85419,50 280247.7	70. 3078243	1 10011	

Table C-3. Trajectory Tables for the Mission with an Inclination of 28.5° and a Cargo of 29,483.504 kg (65,000 lbs)

(Continued)
MDC/HCR I=28.5 FUEL 3064K+524K (65K PAYLOAD)

The same of the sa					;	
	± 14	1 10	ål I I I I I I I I I I	RAD	RADIUS	INCT
	SEC	Σ.	F 7	Σ	E.	DEG
to the territory of the last territory and territory	. 6	:	() () () () () () () () () ()			
	11111 * 8 # Z	241712	h = ac c 26 2	00.2952949	212U2F 31 °U	M2/ h 9 2
	256, 1100	90753.62	297748.1	6464152-19	21207848.2	28.4733
	264,006	92149.37	302327.3	6465556.25	21212454.7	28.4746
	272, 00u	93365°69	306317.9	6456781 -37	21216474 .2	28 4759
	290,000	944]0.19	309744.7	6467835.37	21219932 .2	28.4773
	288, 000	95291 . 37	312635.7.	6468726 -69	21222856.5	28-4787
	296,000	96018,06	315019.9	6469464.19	21225276 00	28.4800
	304, 000	96600 • 08	316929.3	6470057 . 62	21227223.0	28.4815
	312,000	97047.50	318397.3	6470517.44	21228731 .5	28,4829
	320,000	97371 .87	319461.5	6470854487	21229838.7	28 .4843
	328.000	97585,31	320161.8	6471082,37	21230585 . 0	28.4858
	. 335, 000	97701 425	320542.2	6471213-75	21231014.5	28.4873
	344.000	97734.12	320650.0	6471262.06	21231174 .5	28.4889
	352,000	97699.69	320537.0	6471244-69	21231117.5	28.4.904
	360.000	97615.50	320260.8	6471178,75	21230901.2	28.4920
	369, 000	97500 . 62	319883.9	6471083.31	21230588°2	28-4.936
	376.000	97373.50	319466.9	6470977.00	21230239 °2	28.4952
· · · · · · · · · · · · · · · · · · ·	3.94, 000	97258 \$56	319063 -5	6470876-19	21229908-5	28 4958
	392,006	97149.06	318730 5	6470798.31	21229653 0	28 . 4983
	400° 000	97088.00	318530 2	6470752.31	21229535 .0	28.4998
INJECTION	401.026	97080.19	318517.7	6470761.87	21229533 °5	28,5000
	401, 026	97084.19	318517.7	6470761 .87	21229533.45	28.5000

Table C-3. Trajectory Tables for the Mission with an Inclination of 28.5° and a Cargo of 29,483.504 kg (65,000 lbs)

MDC/HCR I=28.5 FUEL 3064K+524K (65K PAYLOAD)

	71 % F	HURN	d	OVN. PRFASURE	ALFP	DRAG	
	SEC		N/ (M) SQ	LB/(FT)50	DEG	Z	, 88 J
		0000	500	000	107 00	56070.058	12597.199
1 1 1 1 - OF F	ממח"	מממח.	מחמי.	ייטטי.	187.08	56479.958	12697*199
	000 a	. 0492	171,870	3.590	015	16142.930	3629.075
	8,000	.1009	713.557	14 . 903.	029	64100.644	14410.398
BEGIN IILI	8.000	, 1009	713,557	14,903	- °029	64100.644	14410.398
	12.000	1552	1654.043	34 2545	683	141475.047	31.804.855
•	16.000	,2123	3006.914	62.801	629	243584.158	54759.896
	20,000	.2726	476.9.721.	99 a.6 18	314	363604 .629	81741.570
END TILI	20.000	*2726	4769.721	99,638	314	363604.629	81741.570
	24,000	.3365	. 6921.181	144.552	000	4 92508 • 707	110742.840
	28.000	4044	9421,549	196.773	. noo	622916.984	140037.305
-	32,000	4758	12205.511	254.938		801300.4711	180139.561.
	36.000	. 5542	15188.280	317.214	.000	1013872.930	227927 697
	40,000		18261.063	381.390	0000	1302005 4906	2 92 702 .562
	44.000	. 7263	21285.446	444.556	000*	1694849.562	381017.328
	48,000	. 8215	24099.350	503 325	000.	23839074812	535923 • 781
	52 4 000	, 9223	26484.214	553.134	000.	3256828.156	732164 078
	56, 000	1,0290	28315,653	591,385	000.	4203591 .750	945005 -000
	60.000	1.1442	29595 . 712	618,119	000.	4567964.250	1026919*195
10 KMS.	52.913	1.2367	30275,013	632 . 307	000.	4511132 -000	1014142.797
	64.000	1.2734	30472 0887	636,423	.000	4473327.062	1005643.906
		1.4193	30895, 195	645.250	000	4270148 .000	959967 . 437
O WAXINUM	68.604	1.4427	30903,564	645.434	000°	4228784 .937	950668 648
	72° DOD	1.5800	30636.238	6.39 86.2	000	3944713,531	886806.859
™ X X X S S S	74.399	1.6822	30102,917	628,712	000.	3694986,594	830666.008
The same of the sa		1.7.521	29578,437	617.759	000*	3508969 4344	788847 .672
	80.000	1.9294	27694 .717	578.416	000.	2996599.875	673662 437
	84, 000	2.1044	25119,838	524 . 6.39	000	2530314. • 594	56883.7 - 336
	88 • 000	2.2701	22137,709	462,356	000.	2113412.500	475114,020
	92,000	2,4505	19479,656	406.841	.000	1747976 4687	392960.781
	96 • 000	2.6478	17042 .178	355.933	000.	1425162.547	320389,277
	100-000	. 2 8486	14839,729	309.934	000*	1143930 .719	257165 4850
	104.000	3.0689	12866,077	268.714	000°	914839.477	205664 .092
	308,000	3.2976	11079.230	231.395	000*	744704.516	167416.230

Trajectory Tables for the Mission with an Inclination of 28.5° Table C-3,

a de dada a		CONTRACTOR OF STREET CHARGE CONTRACTOR OF STREET	I=28.5 FUEL 3D64K+52	FUEL 3064K+524K(65K.PAYLOAD)	K. PAYLOAD		
	TIME	MACH	DYN. P	DYN. PRESSURE M) SQ LB/1F1.150	ALFP DEG	N CO A CA	LBS
	112,000	3.5282	764.7.446	197.315	000°	597997 «344	134435.146
	116.000	3.7650	6781 . 189	167.484	000	175299-121	106851 490 84139 808
	24,000	4 2552	5720-938	119-484	000	299542-590	67339.852
	128; 000	4.5091	4821.948	100.708	0000	238483 259	53613 . 191
	132 * 000	4,7709	4067-750	71 930	000	189013-373	22750 795
	1 5 6 5 10 U U	5.32.32.	29-11 , 281	60.803	000.	123765-159	27823 514
,	144,000	5.6146	2469,315	51.573	000	102002 -272	22931 -022
-	148.000	5,9416	2113,541	. 44°142	-000	8444 9. 386	18984-977
	152,000	6,3090	1820.696	38,026	000	69982 -570	15732.707
	:56 ctitute :-	5,6404 1214	12255	27.926	000	17594 917	10599.762
	164 . DDD	7.5251	1140,213	23.814	000	4056-9-590	91.20.406
	168,000	7.9654	968.175	20 . 221	•000	34448 .344	7744.296
- .	172.000	8.4211	818 .924	17.104	.000°	29137 899	65.50 *4.60
	176, 000	8 8 905	690.169		0000	24556 6689	5520 .563
	1.90° 000	9.3721	579 -732	T	- 0000	2062/5260	261~1594
-	94.000	10.3661	485.595	8.477	000	14440.985	3245 463
, , ,	92,000	10.8761	338,761	7.075	000	12053 .367	2709.705
_	96 . 000	11,3936	282 .607	5 , 902	000	10055.366	2260 .536
-	96,988	11,5226	270.248	5 . Gu	000.	9615 618	2161 677
SEPARALION	196 . 988	11,5226	270-248	5.644	000	000*	000*
	200, 000	11,6061	224.296	4 .685	000°	000*	000°
•	204.000	11,7115	177,127	66.3°	000	000	000°
•	206, 988	11.7865	149.852	3 . 130	000°	000°	000*
ORB IGNITION	206.988	11,7865	149.852	3.130	000	000	000"
	206.988	1-1 - 7865	149.852	3 . 1 30	10.749	000°	°000
*** · · · · · · · · · · · · · · · · · ·	208.000	,0000	000	000*	10,739	000*	000°
	215.000	0000°	000*	00u*	10.547	000°	000*
	224-000	0000	000°	000°	10.520	000*	000
•••	232,000	0000°	.000	000*	10.360	000•	000°

Table C-3. Trajectory Tables for the Mission with an Inclination of 28.5° and a Cargo of 29,483.504 kg (65,000 lbs)

				(Continued)			
	MI	CZHCR I=	MDCZHCR. I=28.5 FUEL 30648+524K_(65K PAYLOAD	4K +524K_(65	K PAYLOADE	i	
						:	
	TIME	H U S	DYN. PRE-	PRESSURE LB/(FT)So	ALFP DEG	DRAG	LBS
	248.000	0000.	000.	000*	9.949	000	000°
	256.000	0000	000	000	9.699	0000	000°
	272,000	0000		ם מוני	9.463	מממ"	חחח.
	280,000	. 0000	000*	000	8.796	000	000.
4	288,000	0000	000*	000*	8.447	*000	000
	296.000	00000	000*	000°	8.077	000°	000°
	304,000	-0000	000°	"000	7.687	*000	000*
	312.000	0000	000°	000°	7.277	*000	000°
	320,000	.0000	000	.000	6.850	•000	000
	328.000	0000°	000°	000°	6.407	000°	000*
	335.000	0000	000	000	5.948	*000	000
	344.000	0000	000	000°	5,475	0000	000*
	352,000	.0000		000*	066° h	-000	000*
	360.000	. 0000	000°	000°	4 . 492	000*	000°
	35.8-000		*000	000	3.985	.000	*000
	376.000	.0000	000°	000°	3.474	000°	000°
100000000000000000000000000000000000000	384,000	0000		*000	2.461	000*	000
	392.000	0000.	000.	000	9446	000*	000°
	400.000	0000	000	. 000	1.931	•000	000°
INJECTION	401.026	. 0000	000	000*	1.865	*000	000°
	401-026	0000	000	ייטטטי	7.85.	000*	ייטטיי

50 ά Trajectory Tables for the Mission with an Inclination Table C-3,

TIME	:		,		(penu			
TIME			1					
F		¥	JL/ HLY 1-28		IK + 529K (65K	PAYLOAD2		
F 0000 90,000 28,370 -80,635000000 1, 0000 89,993 28,370 -80,635000000 1, 0000 89,993 28,370 -80,635029 1, 12,000 89,986 28,370 -80,635029 1, 12,000 89,986 28,370 -80,635029 1, 12,000 89,986 28,370 -80,635029 1, 12,000 89,986 28,370 -80,635029 1, 12,000 89,986 28,370 -80,635020 20,000 90,003 28,370 -80,635029 20,000 90,105 28,370 -80,635020 32,000 90,105 28,370 -80,635020 32,000 90,105 28,370 -80,634020 48,000 90,235 28,370 -80,634209 60,000 90,235 28,370 -80,634209 60,000 90,235 28,370 -80,63720,446 60,000 90,235 28,370 -80,63720,446 60,000 90,39 28,36900,600 61,000 90,39 28,36900,600 62,913 90,786 28,36900,600 63,000 90,939 28,36900,600 74,399 91,039 28,36800,500 84,000 91,449 28,36700,23135,488 88,000 91,348 28,36800,503000 84,000 91,348 28,36600,503000 84,000 91,348 28,36800,503000 84,000 91,348 28,36800,503000 84,000 91,348 28,36800,503000 84,000 91,449 28,36700,503000 84,000 91,449 28,36700,503000 84,000 91,449 28,36800,503000 84,000 91,449 28,36700,503000 84,000 91,348 28,36800,503000 84,000 91,449 28,36700,503000 84,000 91,449 28,36700,503000 84,000 91,449 28,36700,503000 84,000 91,449 28,36700,503000 84,000 91,449 28,368000 84,000 91,449 28,368000 84,000 91,440 28,369000 84,000 91,440 28,369000 84,000 91,440 28,369000 84,000 91,440 28,369000 84,000 91,440 28,369000 84,000 91,440 28,369000 84,000 91,440 28,360000 84,000 91,440000 84,000 91,440000 84,000 91,440000 84,000 91,440000 84,000 91,440000 84,000 91,440000 84,000 91,440000 84,000 91,440000 84,000 91,440000 84,000 91,440000 84,000 91,440000 84,000 91,440000 84,000 91,440000 84,000 91,440000 84,000 91,440000 84,000 91,440000 84,000 91,440000 84,000 91,4400000 84,000 91,4400000 84,000 91,4400000 84,000 91,440 0000 84,000 91,440 0000		TIME SFC	\$ 2 ° 5 0 E G	LATITUDE	LONGITUDE	CHIP DE6	CHIY DEG	CHIR
The color	ere e combre e com es e minera e endenante de debendada de estado de estado de estado de estado de estado de e							
11.1 R. 0000 88, 998 28, 370 80, 635 - 029 - 0001 11.1 R. 0000 89, 986 28, 370 80, 635 - 029 - 0001 11.1 R. 0000 89, 986 28, 370 80, 635 - 029 - 0001 11.1 2, 0000 89, 989 28, 370 80, 635 - 2, 806 0000 11.1 2, 0000 90, 003 28, 370 80, 635 - 4, 209 0000 12.2 0000 90, 003 28, 370 80, 635 - 5, 623 0000 13.2 000 90, 105 28, 370 80, 635 - 5, 623 0000 14.2 000 90, 105 28, 370 80, 678 - 7, 619 0000 15.5 000 90, 105 28, 370 80, 678 - 7, 619 0000 15.5 000 90, 105 28, 370 80, 678 - 7, 619 0000 15.5 000 90, 105 28, 370 80, 678 - 17, 611 0000 15.5 000 90, 105 28, 370 80, 678 - 17, 611 0000 15.5 000 90, 109 28, 359 80, 678 0000 15.5 000 90, 109 28, 359 80, 600 80, 600 15.5 000 90, 109 28, 359 80, 600 15.5 000 91, 109 28, 358 80, 600 15.5 000 91, 109 91, 10	I= %-0FF	000.	90.000	28.370	-80.635	000	000°	92 % 73
11.1 8,000 89,986 28,370 -80,635 -029 -000 1 12,000 89,983 28,370 -80,635 -1,403 000 1 5,000 90,083 28,370 -80,635 -2,806 000 1 5,000 90,003 28,370 -80,635 -1,403 000 1 1,1 20,000 90,005 28,370 -80,635 -1,209 000 1 2,000 90,005 28,370 -80,635 -1,209 000 32,000 90,005 28,370 -80,634 -1,209 000 32,000 90,164 28,370 -80,634 -1,209 000 32,000 90,164 28,370 -80,634 -1,209 000 48,000 90,235 28,370 -80,634 -1,28 90 48,000 90,317 28,370 -80,628 -1,28 90 48,000 90,408 28,370 -80,628 -1,28 90 52,000 90,408 2		000.4	89,993	28,370	-80.635	015	- 001	92 .471
ILT R. DRD 89; 486 28,370 -80,635 029 .000 16,000 99; 983 28,370 -80,635 -2,806 .000 20,000 90; 003 28,370 -80,635 -2,806 .000 11,000 90; 003 28,370 -80,635 -4,209 .000 12,000 90; 003 28,370 -80,635 -4,209 .000 12,000 90; 005 28,370 -80,635 -6,223 .000 12,000 90; 164 28,370 -80,634 -75,619 .000 14,000 90; 164 28,370 -80,632 -12,28 .000 40,000 90; 164 28,370 -80,634 -75,619 .000 40,000 90; 408 28,370 -80,628 -17,611 .000 40,000 90; 408 28,370 -80,628 -17,611 .000 55,000 90; 408 28,370 -80,628 -17,611 .000 61,000 90; 408		8,000	89.985	28.370	- 80 - 6 35	029	001	92.473
12,000 89,983 28,370 -80,635 -1,4003 -10,000 16,000 90,003 28,370 -80,635 -4,209 -000 11,1 20,000 90,003 28,370 -80,635 -4,209 -000 11,1 20,000 90,003 28,370 -80,634 -7,619 -000 12,000 90,025 28,370 -80,634 -7,619 -000 32,000 90,164 28,370 -80,634 -12,819 -000 35,000 90,164 28,370 -80,634 -12,819 -000 40,000 90,177 28,370 -80,636 -12,819 -000 40,000 90,177 28,370 -80,638 -12,611 -900 40,000 90,177 28,370 -80,628 -12,611 -900 40,000 90,177 28,370 -80,628 -12,611 -900 52,000 90,000 28,369 -80,620 -25,384 -900 60,000	EGIN TILT	9.000	89° 486	28.370	-80.635	029	° 000	92.471
11.1 20,000 88,989 28,370 -80,635 -2,806 000 11.1 20,000 90,003 28,370 -80,635 -4,209 000 20,000 90,025 28,370 -80,635 -4,209 000 32,000 90,164 28,370 -80,634 -7,619 000 32,000 90,164 28,370 -80,637 -12,619 000 36,000 90,164 28,370 -80,637 -12,281 000 40,000 90,164 28,370 -80,624 -20,445 000 40,000 90,170 28,370 -80,624 -20,446 000 52,000 90,100 28,370 -80,624 -20,446 000 52,000 90,100 28,370 -80,624 -20,446 000 52,000 90,709 28,369 -80,600 -20,446 000 60,000 90,709 28,369 -80,600 -23,384 000 60,000 90,709	The spine of many to the sail of particular the foundation of the sail of the	12,000	89.983	28.370	-80.635	-1.403	000°	92.871
11.1 20,000 90,003 28,370 -80,635 -4,209 .000 24,000 90,025 28,370 -80,635 -4,209 .000 32,000 90,055 28,370 -80,634 -7,619 .000 32,000 90,105 28,370 -80,634 -7,619 .000 40,000 90,135 28,370 -80,632 -12,831 .000 40,000 90,135 28,370 -80,632 -12,831 .000 40,000 90,137 28,370 -80,624 -20,446 .000 52,000 90,505 28,370 -80,629 -25,349 .000 60,000 90,005 28,369 -80,600 -25,349 .000 61,000 90,105 28,369 -80,600 -25,348 .000 62,913 90,239 28,369 -80,600 -35,439 .000 68,000 90,923 28,369 -80,600 -35,439 .000 68,000 90,139 28,368 -80,590 -35,4497 .000 74,399 91,095 28,368 -80,591 -35,439 .000 76,000 91,744 28,366 -80,591 -35,4497 .000 84,000 91,139 28,367 -80,568 -41,438 .000 84,000 91,244 28,365 -80,593 -41,438 .000 84,000 91,449 28,367 -80,553 -40,271 .000 91,640 28,364 -80,518 -49,647 .000 91,640 28,364 -80,412 -52,130 .000 91,100 91,139 28,365 -80,518 -49,647 .000 91,100 91,139 28,365 -80,518 -49,647 .000 91,100 91,139 28,365 -80,518 -49,647 .000	•	16.000	89.989	28 . 370	-80.635	-2.806	° 000	92 0473
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24,000 90,025 28,370 -80,634 -7,619 000 32,000 90,105 28,370 -80,632 -7,619 000 35,000 90,105 28,370 -80,632 -12,281 000 35,000 90,164 28,370 -80,632 -12,281 000 40,000 90,317 28,370 -80,628 -17,611 000 48,000 90,317 28,370 -80,628 -17,611 000 52,000 90,408 28,369 -80,608 -23,384 000 60,000 90,709 28,369 -80,608 -23,384 000 61,000 90,706 28,369 -80,608 -23,384 000 61,000 90,706 28,369 -80,608 -23,384 000 62,913 90,786 28,359 -80,608 -25,384 000 68,000 90,923 28,358 -80,609 -35,948 000 68,000 90,923 28,368 -80,609 </td <td></td> <td>20,000</td> <td>90.003</td> <td>28,370</td> <td>-80,635</td> <td>-4.209</td> <td>000°</td> <td>18 a 26</td>		20,000	90.003	28,370	-80,635	-4.209	000°	18 a 26
28,000 90,105 28,370 -80,634 -7,613 -000 35,000 90,105 28,370 -80,633 -12,28 000 35,000 90,235 28,370 -80,628 -17,61 000 40,000 90,317 28,370 -80,628 -17,61 000 48,000 90,408 28,370 -80,628 -17,61 000 52,000 90,606 28,369 -80,608 -25,364 000 60,000 90,606 28,369 -80,608 -25,364 000 61,000 90,709 28,369 -80,608 -25,364 000 64,000 90,709 28,369 -80,608 -25,364 000 64,000 90,815 28,369 -80,608 -25,364 000 64,000 90,815 28,369 -80,608 -25,364 000 64,000 90,815 28,369 -80,608 -35,948 000 68,600 90,815 28,368 -80,609 <td></td> <td>24,000</td> <td>90 .025</td> <td>28.370.</td> <td>-80.635</td> <td>-5.623</td> <td>000</td> <td>92.47</td>		24,000	90 .025	28.370.	-80.635	-5.623	000	92.47
\$2,000 90,164 28,370 -80,652 -12,281 000 \$40,008 90,317 28,370 -80,628 -17,611 000 \$40,008 90,317 28,370 -80,628 -17,611 000 \$40,008 90,317 28,370 -80,628 -17,611 000 \$52,000 90,505 28,359 -80,620 -23,354 000 \$54,000 90,718 28,359 -80,603 -32,382 000 \$64,000 90,718 28,359 -80,603 -32,382 000 \$68,000 90,923 28,359 -80,590 -35,946 000 \$72,000 91,093 28,358 -80,591 -35,946 000 \$74,399 91,133 28,358 -80,553 -40,271 000 \$76,000 91,744 28,356 -80,553 -44,287 000 \$76,000 91,744 28,356 -80,518 -90,647 000 \$76,000 91,730 28,356 -80,518 -90,647 000 \$76,000 91,730 28,356 -80,518 -90,647 000 \$76,000 91,730 28,356 -80,518 -90,647 000 \$76,000 91,730 28,356 -80,518 -90,642 000 \$76,000 91,730 28,356 -80,518 -90,642 000 \$76,000 91,730 28,356 -80,518 -90,642 000 \$76,000 91,730 28,356 -80,518 -90,642 000 \$76,000 91,730 28,356 -80,518 -90,642 000 \$76,000 91,730 28,356 -80,518 -90,642 000 \$76,000 91,730 28,356 -80,518 -90,642 000 \$76,000 91,730 28,356 -80,618 000 \$76,000 91,730 28,356 -80,618 000 \$76,000 91,730 28,356 -80,618 000 \$76,000 91,730 28,356 -80,618 000 \$76,000 91,730 28,356 -80,618 000 \$76,000 91,730 28,356 -80,618 000 \$76,000 91,730 28,356 -80,618 000 \$76,000 91,730 28,356 -80,618 000 \$76,000 91,730 28,356 -80,618 000 \$76,000 91,730 28,356 -80,618 000 \$76,000 91,730 28,356 -80,618 000 \$76,000 91,730 28,356 -80,618 000 \$76,000 91,730 28,356 -80,618 000 \$76,000 91,730 28,356 -80,618 000 \$76,000 91,730 28,356 -80,618 000 \$76,000 91,730 28,356 -80,618 000 \$76,000 91,730 28,356 -80,618 000 \$76,000 91,730 28,356 -80,618 000 \$76,000 91,730 28,356 -80,618 000 \$76,000 91,730 9		28.000	91, 1159	28.370	-80.654	5 La 0 / -	200.	7.8.80
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### 17 28.370 -80.628 -17.611 -000 ### 000 90.408 28.370 -80.624 -20.446 -000 52.000 90.605 28.369 -80.610 -23.384 -000 60.000 90.786 28.369 -80.608 -29.382 -000 64.000 90.786 28.369 -80.603 -32.439 -000 64.000 90.923 28.369 -80.600 -32.439 -000 68.604 90.923 28.368 -80.591 -35.488 -000 74.399 91.095 28.368 -80.591 -35.488 -000 76.000 91.744 28.367 -80.553 -40.271 -000 80.000 91.744 28.367 -80.553 -40.267 -000 80.000 91.749 28.367 -80.518 -90.647 -000 92.000 91.546 28.365 -80.518 -90.647 -000 92.000 91.730 28.365 -80.414 -54.486 -000 90.000 91.730 28.365 -80.414 -54.486 -000 90.000 91.730 28.365 -80.414 -54.486 -000 90.000 91.730 28.365 -80.414 -58.713 -000 90.000 91.730 28.365 -80.414 -58.713 -000 90.000 91.730 28.365 -80.414 -58.713 -000 90.000 91.730 28.365 -80.414 -58.713 -000 90.000 91.730 28.365 -80.414 -58.713 -000 90.000 91.730 28.365 -80.414 -58.713 -000 90.000 91.730 28.365 -80.414 -58.713 -000 90.000 91.730 28.365 -80.414 -58.713 -000		55 ° UUU	50° 164	075.82	760.00	120201	ממה	1 1 2 1 C C
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52,000 90,605 28,369 -80,650 -23,384 .000 60,000 90,709 28,369 -80,608 -29,382 .000 64,000 90,786 28,369 -80,603 -31,608 64,000 90,815 28,369 -80,600 -32,439 .000 68,000 90,823 28,368 -80,591 -35,439 .000 72,000 90,823 28,368 -80,591 -35,488 .000 74,399 91,095 28,368 -80,591 -35,448 .000 76,000 91,313 28,368 -80,593 -40,271 .000 80,000 91,744 28,368 -80,518 -40,271 .000 92,000 91,749 28,366 -80,518 -49,642 .000 92,000 91,640 28,365 -80,618 .000 92,000 91,640 28,365 -80,618 .000 92,000 91,640 28,365 -80,618 .000 91,730 28,364 -80,412 -56,418 .000		48.000	90,000	28.370	-80.624	-20 .445	000	92.47
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60.000 90.709 28.369 -80.608 -29.382 .000 62.913 90.786 28.369 -80.603 -31.508 64.000 90.915 28.369 -80.600 -32.439 .000 68.604 90.93 28.368 -80.591 -35.488 .000 74.399 91.031 28.368 -80.591 -35.488 .000 74.399 91.095 28.368 -80.591 -36.497 .000 84.000 91.138 28.368 -80.553 -40.271 .000 84.000 91.344 28.367 -80.553 -40.271 .000 84.000 91.344 28.366 -80.518 -49.647 .000 84.000 91.348 28.366 -80.518 -90.647 .000 92.000 91.640 28.365 -80.496 .000 93.730 28.365 -80.496 .000 93.730 28.365 -80.496 .000		-56-000	909*06	28-369	80 -615	-26.348	0000	92.671
62,913 90,786 28,359 -80,603 -11,508 .000 64,000 90,815 28,359 -80,600 -32,439 .000 68,004 90,923 28,358 -80,591 -35,488 .000 74,399 91,095 28,358 -80,581 -38,497 .000 76,000 91,139 28,358 -80,573 -40,271 .000 80,000 91,734 28,357 -80,553 -40,271 .000 84,000 91,739 28,356 -80,518 -99,897 .000 92,000 91,449 28,356 -80,618 -99,807 .000 96,000 91,640 28,356 -80,445 -52,130 .000 91,730 28,357 -80,495 .000		60,000	90,709	28 . 369	-80,608	-29.382	000°	92 .471
64,000 90,815 28,359 -80,600 -32,439 ,000 68,000 90,923 28,358 -80,591 -35,948 ,000 72,000 91,031 28,368 -80,591 -38,927 ,000 74,399 91,095 28,368 -80,573 -40,271 ,000 76,000 91,348 28,367 -80,553 -44,287 ,000 84,000 91,348 28,367 -80,553 -44,287 ,000 94,000 91,449 28,367 -80,518 -90,642 ,000 92,000 91,449 28,365 -80,518 -90,642 ,000 92,000 91,640 28,365 -80,446 -52,430 ,000 100,000 91,540 28,365 -80,445 -56,486 ,000 100,000 91,730 28,367 -80,445 -56,811 ,000	- SHX O	52, 913	90.786	28,359	- 80 - 503	31.608	000°	92 . 4 7 I
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22,000 91,033 28,368 -80,581 -38,497 000 76,000 91,095 28,368 -80,553 -40,271 000 80,000 91,244 28,367 -80,553 -44,6287 000 84,000 91,244 28,366 -80,553 -44,6287 000 88,000 91,449 28,366 -80,518 -49,647 500 92,000 91,449 28,365 -80,518 -49,647 000 92,000 91,546 28,365 -80,472 -54,486 000 91,540 28,364 -80,472 -54,486 000 100,000 91,540 28,361 -80,442 -56,2130 000 100,000 91,640 28,364 -80,442 -54,486 000 100,000 91,816 28,361 -80,442 -56,2130 000	MUMIXEM	68.604	90,039	28°368	-80°290	- 35,946	000°	92 . 471
74,399 91,095 28,368 -80,573 -40,271 .000 76,000 91,138 28,367 -80,553 -44,287 .000 84,000 91,244 28,367 -80,553 -44,287 .000 84,000 91,449 28,365 -80,518 -49,642 .000 92,000 91,449 28,365 -80,518 -49,642 .000 92,000 91,640 28,365 -80,496 .52,130 .000 100,000 91,640 28,365 -80,445 -52,130 .000 100,000 91,730 28,364 -80,445 -56,886 .000		72,000	91.031	28.358	-80.581	-38.497	*DDD	92 . 471
000 91,139 28,367 -80,553 -44,287 .000 000 91,244 28,367 -80,553 -44,287 .000 000 91,348 28,366 -80,518 -49,642 .000 000 91,449 28,365 -80,518 -49,642 .000 000 91,546 28,365 -80,496 -52,4130 .000 01,816 28,362 -80,445 -56,712 .000 01,816 28,362 -80,444 -58,713 .000	4 KMS.	74.399	91,095	28 . 368	-80.573	-40.271	۰ 000	92 .473
000 91,244 28,367 -80,553 -44,287 .000 000 91,348 28,366 -80,537 -47,026 .000 000 91,449 28,365 -80,518 -49,647 .000 000 91,546 28,365 -80,496 -52,130 .000 01,540 28,364 -80,445 -54,486 .000 01,816 28,364 -80,414 -58,813 .000		.76,000	91.138	28 - 367	- 80 * 568	-41.438	000	92.471
000 91,348 28,366 -80,517 -47,026,5000 000 91,449 28,365 -80,518 -49,647 000 000 91,546 28,365 -80,496 -52,130 ,000 000 91,640 28,364 -80,472 -54,486 ,000 000 91,730 28,362 -80,414 -58,713 ,000		១០១ ១០៩	91,244	28 * 367	-80.553	-44.287	° 000	92 . 473
000 91,449 28,365 -80,518 -49,642 ,000 000 91,546 28,365 -80,496 -52,130 ,000 000 91,640 28,364 -80,472 -54,486 ,000 000 91,730 28,362 -80,445 -56,712 ,000	: ! !	84,000	91 . 348	28.366	80 a 5 37	-47.026	000°	92 .471
000 91,546 28,355 -80,496 -52,130 ,000 000 91,640 28,364 -80,472 -54,486 ,000 000 91,730 28,352 -80,445 -56,712 ,000 000 91,816 28,363 -80,414 -58,813 ,000		88.000	91.449	28,365	-80.518	- 49 642	000°	92 . 471
000 91,540 28,364 -80,472 -54,486 ,000 000 91,730 28,362 -80,445 -56,712 ,000 000 91,816 28,361 -80,414 -58,811 ,000		92, 000	91.546	28,365	- 80 ° 496	-52,130	000*	92 : 471
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91.816 28.368 -80.414 -58.818 .000		100,000	91 .730	28,362.	-80.445	-56,712	000°	92 .471

Trajectory Tables for the Mission with an Inclination of 28.5° and a Cargo of 29,483.504 kg (65,000 lbs) Table C-3,

MOC/HCR I=28.5 FUEL 3064K+524K (65K PAYLOAD)

91.980 92.058 92.134 92.208 92.208 92.213 92.423 92.423 92.423 92.423 92.423 92.423 92.423 92.423 92.423 92.423 92.701 92.840 92.910 92.910 92.910 92.910 92.910 92.910 92.910 93.701 93.511 93.511 93.511 93.511	DEG	1 1		
112, 000 91,980 14,000 92,058 120,000 92,134 128,000 92,280 132,000 92,280 135,000 92,493 140,000 92,632 148,000 92,632 152,000 92,632 152,000 92,981 152,000 92,981 154,000 92,981 155,000 92,981 156,000 93,126 180,000 93,126 180,000 93,13 196,988 93,531 196,988 93,530 196,988 93,530 196,988 93,530 196,988 93,530 196,988 93,530 196,988 93,530 196,988 93,530 196,988 93,530 196,988 93,530 196,988 93,530 196,988 93,530 196,988 93,530 196,988 93,530 196,988 93,530 196,988 93,530		DEG	_ DEG.	DEG
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120, 000 92,134 124,000 92,208 132,000 92,152 136,000 92,423 140,000 92,423 144,000 92,423 144,000 92,423 144,000 92,563 152,000 92,701 156,000 92,701 156,000 92,70 184,000 92,98 175,000 93,126 188,000 93,126 188,000 93,126 188,000 93,126 188,000 93,126 188,000 93,126 196,988 93,585 206,988 93,519 206,988 93,709 206,988 93,709		-64,398	000	92 .471
124.000 92.208 128.000 92.280 132.000 92.423 140.000 92.423 140.000 92.423 140.000 92.423 140.000 92.403 152.000 92.403 152.000 92.701 154.000 92.701 158.000 92.98 175.000 93.126 188.000 93.126 188.000 93.126 188.000 93.512 196.000 93.513 196.000 93.511 196.000 93.511 196.000 93.511	4 -80.259	-66.046	000°	92 471
128,000 92,280 132,000 92,352 140,000 92,423 144,000 92,493 148,000 92,563 152,000 97,701 156,000 97,981 172,000 97,981 172,000 97,981 172,000 93,126 180,000 93,126 180,000 93,126 180,000 93,131 196,988 93,511 196,988 93,510 206,988 93,510 206,988 93,709	2 -80.211	-67,596	000	92 . 471
132.000 92.152 136.000 92.423 140.000 92.493 144.000 92.493 148.000 92.632 152.000 97.701 156.000 97.710 158.000 97.840 172.000 93.840 172.000 93.126 180.000 93.126 180.000 93.126 196.988 93.511 196.988 93.511 196.988 93.511 206.988 93.709	0 -80.159	-69.056	000°	92 * 471
136,000 92,423 1440,000 92,493 144,000 92,493 152,000 92,632 156,000 92,701 156,000 92,310 154,000 92,840 154,000 93,010 176,000 93,012 186,000 93,126 188,000 93,126 196,988 93,511 196,988 93,709 206,988 93,709	7 -80,103	- 70.430	000	92.471
140.000 92.493 144.000 92.563 152.000 92.770 156.000 92.770 164.000 92.770 164.000 92.810 168.000 92.810 168.000 93.053 176.000 93.053 176.000 93.126 188.000 93.276 194.000 93.511 196.988 93.511 206.988 93.709 206.988 93.709	4 -80.042	-71 -776	000°	92 . 471
144,000 92,563 148,000 92,410 152,000 92,710 156,000 92,840 164,000 92,810 158,000 92,98 175,000 93,126 188,000 93,126 188,000 93,126 188,000 93,126 194,000 93,353 196,988 93,511 196,988 93,510 206,988 93,709 206,988 93,709	1 -79,977	- 72,949	000	92 .471
148.000 92.632 152.000 92.770 150.000 92.770 150.000 92.810 168.000 92.98 172.000 93.126 180.000 93.200 180.000 93.200 180.000 93.353 196.988 93.531 196.988 93.531 206.000 93.585 206.000 93.531 206.988 93.709	8 -79.908	-74.106	000*	92 . 471
152,000 97,701 156,000 92,270 164,000 92,840 164,000 92,981 172,000 93,126 180,000 93,126 180,000 93,126 184,000 93,126 184,000 93,431 196,988 93,531 196,988 93,531 206,988 93,709 206,988 93,709	4 - 79.834	-75.203	000.	92 . 471
156,000 92,840 150,000 92,840 164,000 92,840 172,000 93,053 176,000 93,126 180,000 93,276 188,000 93,276 198,000 93,431 196,988 93,531 206,988 93,539 206,988 93,709 206,988 93,709		-76.245	000°	92 . 471
150,000 92,840 154,000 92,810 172,000 93,981 175,000 93,126 188,000 93,276 188,000 93,276 195,000 93,511 196,988 93,511 206,988 93,709 206,988 93,709	E = 79.672	- 77.238		92 .471
164,000 92,910 172,000 93,053 176,000 93,126 180,000 93,210 192,000 93,431 196,988 93,511 196,988 93,511 200,000 93,656 206,988 93,510 206,988 93,709		-78.184	000	92 . 471
158,000 92,981 172,000 93,053 176,000 93,126 184,000 93,276 188,000 93,276 196,000 93,431 196,988 93,511 196,988 93,531 200,000 93,585 204,000 93,585 206,988 93,709 206,988 93,709	7 - 79.493	- 79 .0.89	000	92 .471
172,000 93,053 176,000 93,126 180,000 93,200 184,000 93,353 192,000 93,431 196,988 93,511 196,988 93,511 200,000 93,656 204,000 93,656 206,988 93,709 206,988 93,709	2 -79,396	-79.954	•000	92 a471
176,000 93,126 180,000 93,200 184,000 93,431 196,088 93,511 196,988 93,511 196,988 93,511 200,000 93,656 204,000 93,656 206,988 93,709 206,988 93,709	E - 79.295	- 80.783	000	92 .471
180,700 93,276 184,000 93,276 188,000 93,431 196,988 93,531 206,988 93,535 206,988 93,709 206,988 93,709 206,988 93,709	0 -79,189	-81 -579	•000	92 . 471
184,000 93,276 188,000 93,431 192,000 93,431 196,988 93,531 196,988 93,585 204,000 93,686 206,988 93,709 206,988 93,709	4 -79.D79	82 . 344	000	92.471
188,000 93,431 192,000 93,431 196,988 93,531 196,988 93,531 200,000 93,585 204,000 93,585 206,988 93,709 206,988 93,709		-83.080	000°	92 471
192,000 93,431 196,000 93,511 196,988 93,531 200,000 93,585 204,000 93,656 206,988 93,709 206,988 93,709	1 78,844	-83.788	000*	92 . 471
196,988 93,531 196,988 93,531 200,000 93,585 204,000 93,656 206,988 93,709 206,988 93,709	3 -78,770	-84.472	000	92 . 471
196.988 93.531 196.988 93.531 200.000 93.656 206.988 93.709 206.988 93.709	E78.591	-85.131	000*	92 .471
196.988 93.585 204.000 93.585 204.000 93.656 206.988 93.709 206.988 93.709	4 -78,559	-85.290	000°	92 .471
200,000 93,585 204,000 93,656 206,988 93,709 206,988 93,709	4 -78.559	-85.290	*000	92,471
204.000 93.656 206.988 93.709 206.988 93.709	8 -78,459	-85.775	000*	92 .471
206,988 93,709 206,988 93,709	-78.327	-86.419	* 000	92 . 471
206.988 93.709 206.988 93.709	3 -78,229	-86.901	000°	92 471
MIN-H 206.988 93.709		-86.901	000	92 . 471
	3 -78.229	-76.817	000°	92 . 471
208.000 93,728 28.241	1 -78.195	- 76 . 933		92.471
216,000 93,881 28,223	3 -77.976	-77.853	000°	92 4 7 1
224,080 - 94,038 28,204	4 - 77.648	-78,779	000	92 0471
232,000 94,199 28,184	4 -77.360	-79.710	۰000	92 "47]

Trajectory Tables for the Mission with an Inclination of 28,5° Table C-3,

3n or 26,3			CHIR	DEG	92.471	92 .471	92 .471	92 a 4 7.1	92 .471	92 . 471	92 °471	92 . 4.7.3	92 . 471	92 0473	92 ° 471	92.471	92 .471	92 ~471	92 . 471	92.471	92 0473	92.4.71	92.471	92.471	92 .471	92.471
ibs)			CHIY	DEG	0000	000°	۰ 000	*000	000*	000°	000°	000∞	000°	°000°	000		000*	*000	۰ 000	•000	، 100	•000	۰ 000	000ء	000°	000°
cargo of 29,483,504 kg (65,000 lbs)		PAYLOAD)	CHIP	0 5 0	-81.588	-82.535	-83.488	-84 e445	- 85°409	-86.376	-87 × 3 # 8	-884325	- 89 * 306	90 .291	-91,280	-92.273	-93,270	-94 *269	- 95 .272	-96 -278	- 97 , 286	-98.2.9E.	-99.308	-100 •322	-1,00 • 455	-100 452
29,483,504 k	ed)	3U64K+524K (65K	LONGITUDE	DEG	-76.757	-76.441	-76,114	-75.776	-75.427	-75.067	-74.694	-74 .310	-77.912	-73.501	-73.076	-72 - 637-	-72,182	-711 «712	-71,225	-70 °72:1	-70°199	69*659.	-69,101	-68,526	-68,451	-68,451
cargo of 29	(Continued)	FUEL	LATITUDE	056	28.139	28.114	28 . 087	28°058	28.028	27 a 995	27,961	27.923	27,884	27.841	27,796	27.347	27 . 696	27.640	27.583	27,517	27.450	27.377	27 , 300	27.218	27 . 207	77.237
and a Ca		MDC/HCR I=28.5	200	930	94.534	94 . 707	94.886	95,069	95.257	95.449	95° 648	95 * 851	96 ° DE CT	96 - 275	96°498	96 . 724	96,958	97 . 198	944 6	97 , 701.	07,964	93.234	98,511	98.795	98.832	98 932
		¥	14 H	SEC	248,000	256, 000	264.000	272,000	280,000	233, 000	296,000	304,000	312.000	320" 000	328.000	- 335, 400	344,000	352, 000	360,000	368,000.	3.76 , 000	. 384, 000.	392,000	400,000	401°D26	401.026
זשחדש כבח		1			The same of the sa					to the many support production and the support of						The second secon						to become the compared to the second of the		ı	INJECTION	

Trajectory Tables for the Mission with an Inclination of 28.5° and a Cargo of 29,483.504 kg (65,000 lbs) Table C-3,

(Continued)

MDC/HCR I=28.5 FUEL 3D64K+524K (65K PAYLOAD)

	TIME	PANGE KM	RANGE ANG.	TOTAL ALPHA	IMP. LAT.	IMP. LONG.
TET-OFF	000	000	000*	000°	28.370	-80.635
	000	000	000	000*	28.370.	-80 .635
	000 7	000	.015	015	28.370	-80.643
	8.000	000*	.029	- *029	28,370.	-80.637
BEGIN TILI	8,000	000.	.029	029	28 .370	-80.637
	12,000	.001	7 D d d	- * 683	28,370	-80 .637
	16,000	,007	. U59	E29	28.370	-80.635
	20,000	*024	074	- 314	28.370	-80 • 6 36
F MU TT! T	20,000	,024	4700	314	28.370	-80.636
	24,000	0 V	, D89	900*	28.370	-80.634
	28,000	116	, 104	.008	28.370	-80.632
	12.000	205	0110	6000	28.370	-80 -629
	36,000	.337	.135	.011	28 .370	-80.625
	40.000	. 522	*152	.013	284,369	-80.611
	000 * 5 5	.772	.169	.016	28 . 368	-80°594
	48.000	1.100	-186	.018	28,367	-80 = 573
	52.000	1.517	.205	.021	28.366	-80.547
	55,000	2.036	224		28.365	- 30 .514
	60.000	2.667	.245	.027	28.363	-80.476
10 KMS.	62,913	3.204		.029	28,362	- 80 . 4 4 3
	64,000	3.423	992°	.030	28,361	-80.430
	63,000	4.320		. D34	28,359	-80 .375
G MAXIMUM	68.604	694°5	262*	. D 34	. 28,358	-80.366
1	72,000	5,375	313	*037	28.356	-80.310.
SWX S	74 . 399	6.089	, 328	.039	28.354	-80.266
	76,000	6 . 603	.339	040*	28.352	-80 .235
	80.000	8.025	356	.043	28 . 348	-80.147
	84,000	9,659	336		28,343	-90.047
!	88,000	11,524	.427	640°	28,337	-79.933
	92, 000	13.638	.461	.052	28,331	-79 , 804
	000*96	16.018	764"	.055	28 . 323	-79.661
	100,000	18.684		.058	28,315	-79.504
	104,000	21,650	.577	.061	28 . 305	-79,331

Trajectory Tables for the Mission with an Inclination of 28.5° Table C-3,

Inclination of 28,5° 1bs)			. LAT. IMP. LONG. G DEG	28.282 -78.940	8.254 -78.486	28.237 -78.235	805.77 - 77.684		28.154 -77.069			28 eft 4				21.872 -13.911				27 4655 -71 4954			27 .6 4371.854	-71		71.884	27.477 -71.318		
ion with an kg (65,000		4 (65K PAYLOAD)	TOTAL ALPHA IMP. DEG DEG		.040. .073	i i	2 280.		. N88 2				2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		2			-	.133	~ .				ó n	on •		10.651		
<u>,,</u> 0	(Continued)	FUEL 3064K+524K	RANGE ANG. Deg	80 (10 (.772	.829	18 9 8 9 8 9 8 9 8 9 8 9 8 9 8 9 8 9 8 9	1 .022	1.094	1.250	1.334	1 422	1.609	1 .709	1.0013	1.921	2.150	2,270	2.394	2.522	2.555	2.654	2,785	2 .883	7,883	2.883	2,916. 2,108	r ទា ម ទា មា មា	ì
Trajectory Tables and a Cargo o		MDC/4CR I=28.5	D ANGE K M	78.553	32,520 36,851	41,561	45° F68°	58.118	64.491	78,556	86.252	94.392.	112,011	121.492	131,423	141.803	153,919	175.655	187.844	200.486	203.678	213.451	226.423	236 . 109	236.109	236.109	239 2396	793,215	
°-3		Σ	TIME SEC	112,000	116.000 120.000	124,000	128,000	135.000	140.000	144,000	152,000	156,000	164,000	169,000	172.000	175, 000	180-000	188.000	192, 000	196.000	2000	200,000	204.000				208-000	226,000	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -
Table				W																	CED & D A T T ON				83 130 130 130 130 130 130 130 130 130 13	BEGIN MIN-H			:

Trajectory Tables for the Mission with an Inclination of 28.5° and a Cargo of 29,483.504 kg (65,000 lbs) Table C-3.

	TIME SEC	RANGE	RANGE ANG.	TOTAL ALPHA DEG	IMP. LAT. DEG	IMP. LONG. Deg
	248,000	380.856	4.335	9.952	27.300	-69.229
	256.000	412.037	4.544	9 4 703	27.217	-68.653
	264.000	444,260	4 , 963	9.4.27	27.127	-68.049
	27.2,000	477.561	5.292	9 125	27.029	-67 .414
	280.000	511,979	5.631	8.799	26 * 923	-66.745
	288,000	547.556	5 *980	8 450	26.806	-66.035
	296.000	584.337	6.340	8 . D 8 fi	26.677	-65,278
	304,000	622.368	6.711	7.690	26 . 532	-64 • 465
	312.000	661,701	7.094	7.280	26.370	-63.583
	320,000	702.390.	7.490	£ 58 ° 9.	26.185	-62 .618
•	328.000	264"446	7.897	6.410	25,971	-61.547
	336,000	788-071	8.319.	5 . 951	25°717	-60 - 339
	344.000	833,194	8.754	5.479	25.408	-58.934
	352,000	87.9 4936	9.203.	4.993	25.025	-57 .294
	360.000	978,376	9.668	96 4 6 4	24 .5 16	-55.249
	368.000	978.602	10.149	3.989	23°797	-52,574
	376.000	1030.675	10.645	3.478	22.711	-48.902
	3.84.000	1084.601	11,160	2 - 965	20.803	-43 .215
	392 ° 000	1140,382	11,691	2.451	16 . 025	-31.484
	400,000	1198.017	12.239	1.937	16.025	-31 .484
INJECTION	401.026	1205.544	12,310	1.871	16.025	-31.484
	200-100	1206 5001	12.210	100	300	-71 11 01

Table C-3. Trajectory Tables for the Mission with an Inclination of 28.5°

on with an Inclination of 28,5°s (65,000 lbs)	:	ALPHA Q DES. NODE N*RAD LB*DEG DEG	000-06 000- 000	000-		-4.632	6	-32,989 -424,915 90,090 -26,118 -336,261 90,077	I MUDE STORE	្ត ទ ទ	16.169	25.755	00 (00) 00 (00) 00 (00)	4.25.2 54.83.98 34.46.4.8: 5.811 74.852 89.524	98-178	124 . 115	151 -632	179.627	5.516 133.4862 63.641 6.4090 207.244 88.587	232 4881	236.384	253 438 88 18		20 981 268 955 87.799	200000000000000000000000000000000000000	19.077 245.729 87.438	229 #511	4 212.321	
Tables for the Missic Cargo of 29,483.504 k (Continued)		AERO HEATING INDIC. N-M/(M)SQ LB-FI/(FI)SQ.		0,	30998.0 2124.0	2124.0	111.99 -0-	536327.7 36750.1 -3:	0.000 co	199372-4	379446.9	661466.2	1076913.5	24211447.5 1554011.1 35609122.0 2000000.6	3,000,000	4696834 . 4	6188571 .3	7911649.6	,	12032626.9	12379525 . 9	14410060.6	1591/9/54	7 1 3 1 36 16 all 15 45 18 42 all 7.	- C-	24834375.5	27327432.5	29711886.5	
Table C-3. Trajectory and a and a MDC/HCR I=	Company of the Company	TIME SEC	1151.066			EGIN TILT 8.000		16.000	50° 00° 00° 00° 00° 00° 00° 00° 00° 00°		28.000	32, 000	36.000		000 -84 .	52.000			0 KMS. 07.415 E			72,000	-	2 nnn *9/				h 000°96	

Table C-3. Trajectory Tables for the Mission with an Inclination of 28.5° and a Cargo of 29,483.504 kg (65,000 lbs)

MDC/HCR I=28.5 FUEL 3064K+524K (65K PAYLOAD)

	_		ALKO THAT IND INC.		9	DES. NODE
A THE RESIDENCE OF THE PARTY OF	- SEC		L8-E1/1E1150-	N*RAD	LB *DE G	DEG
	24.2	554175328.0	0.0417977	11.100	142 -973	86.596
	11000	0.0350.150.0 0.0350.550.0	7007000	. 6 . 8 . 8 . 8	126.686	86 4 90
		0.0121200	41230478.D	8.85	111 -623	86.392
	124.000	622294616.N	42640725.5	7.604	046*16	86.301
	128.000	540904104.0	43915880.5	5.655	85.714	86.217
	122.000	652598200-0	4506641.5	5.820	74.961	86.140
	135 000	672852152°D	45105017-0	5,094	65.612	86.068
	140.000	686518936.0	47041489.0	4 . 4.E 4	57.494	86 •002
	144,000	69820528°0	47884416 41	3.920	50 .491	85.942
	148.000	7.09904744.0	48643926.0	3.473	44.740	85 * 88
	152,000	719976976 .0	49334093 • 0	3.097	39.889	85 . 838
	156.000	729104080-0	49959498	2.751.	3.5.435	85.792
	150.000	737327648.0	50522992.0	2.434	31 ,349	95.750
	164.000	744694272.0	51027766.0	2 . 144	27,614	85 711
	158,000	751255240.0	51477335.5	1.880	24 .215.	85 . 675
Andrew Co. C.	172,000	. 757.065656 . 0.	51875475.D.	1641	21.139	85 .6 42
	176.000	762183504.0	52226159.0	1.426	18 4373	95.610
	180,000	766668656 0	52533489.5	1.235	15., 906	85 .581
	184.000	770581600.0	52801611.5	1.065	13.722	85,554
	1.88 .000	173982232 0	53034628.5	.916	11.805	85 . 528
	192,000	776928560.0	53236516.5	.787	10 4134	85.504
The second field was a second field from the second fr	196.000	779475856.0	5341,1062.0	s.675	8.690	85 .481
	195.988	780049568.0	53450373.0	649*	8 . 366	85 . 475
SEPABATION	196,988	780049568.0.	53450373.0	649	8 , 36.6.	85 .475
	200,000	781615064.0	53557644 .D	,564	7 0273	85.474
a constitution of the second	204.000	783296824.0	53672881.0	24 h s	6,085	85 .473
	205.988	784321808.0	53743115.0	6417	5 . 365	85 . 471
ORB IGNITION	206.988	784321808.0	53743115 °C	.417	5 , 365	85 .471
REGIN MIN-H	206.988	784321808.0	53743115.0	28.123	362 .245	85 .471
	208.000	784321808 "0	53743115.0	000.	000	85.469
	216,000	784321809.0	53743115.0	000.	000°	85 448
	224.000	284321808.0	53743115.0	000°	000°	85,428
	232,000	784321808 ₀ 0	53743115.0	000	000°	85.408

Table C-3. Trajectory Tables for the Mission with an Inclination

of 28.5°				DES. NODE	0.56	85.370	85 - 352	85 .335	85.317	85 .301	85.284	85 2 68	85 25.2	85,237	85 222	85 .207	85,193	85 .1 79	85.4165	85.151	85 . 1.38.	85,125	85.113	85 .101	85 .091	85.089	.85.089
Inclination 1bs)				0	L 8*DEG	000•	•000	000.	*000	000.	*000	000°	*000	000°	*000	000.	*000	000°	*000	000	*000	000°	*000	000°	,000	000°	*000
sion with an 4 kg (65,000		SK PAYLOAD!	T. T. Carlotter	ALPHA	N*RAD	000•		0u <i>u*</i>	•000	000.		000°	000*	000°	0Q0* ·	000°	*000	000"	*000	000.	000*	000°	• 0000	000°	000*	000*	•000
inajectory lables for the Mission with an Inclination and a Cargo of 29,483.504 kg (65,000 lbs)	(Continued)	L 3064K+524K (65K		AERO HEATING INDIC.	L8-F1/(F1)S0	53743115.0	53743115.0	53743115.0	53743115 .0	53743115.0	537431.15.Л	53743115 °C	53743115 on	53743115 .0	53743115.0	53743115 n	537431.15.0	53743115 nn	53743115.1	53743115.0	53743115.0	53743115.0	5.3743115.0	53743115.0	53743115 . N	53743115 nD	53743115.0
ectory lables and a Cargo		MDC/HCR I=28.5 FUEL		AERO HEAT	N-M/(M)SO	784321808.0	784321808.0	784321808.0	784321808.0	784321808.0	784321.808.0	784321808.0	784321808.0	784321808.0	784321808.0	784321808.0	784321808.0.	784321808.0	784321808.0	784321808.0	794321808.0	784321808.0	784321808.0-	784321808.0	784321808.0	784321808 .0	784321808.0
ravie o'o, tiaj		MDC		TIME	SEC	248,000	255,000	264.000	272, 000	280,000	298,000	296.100	334 000	312.000	320,000	328,000	. 336, 000	344.000	352, 000	360.000	358, 000	376.000	384, 000	392.000	400, 000	401.026	401,026
1901											The state of the s												the state of the s			INJECTION	

Table C-3. Trajectory Tables for the Mission with an Inclination of 28.5° and a Cargo of 29,483.504 kg (65,000 lbs)

MDC/HCR I=28.5 FUEL 3064K+524K (65K PAYLOAD)

	178 6 6			> NO 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	COUNTRACTOR		
e de l'agra e de la granda de l'agra	11 mc	S	. 14		II.	5 .	Ħ
1 1F 1 - OF F	000°	6373293.3	7. 920902	17911.7	58765.6	773.0	2536.2
	000	6373293.3	20909754.7	17911.7	58765 *6	773 aD.	2536.2
	4 . 000	6373326.9	20909865.2	17841.1	58533.8	2407.2	7897。8
	8,000	6323430.1	20910203.5	177,70	58301 • 3	40,41. *5	1.3259 4
BEGIN TILI	8,000	6373430.1.	20910203.5	17770.2	58301.3	4041.5	13259°4
	12 000	6373605.8	20910780.0	17699.1	5.80.68.D.	56 766	18623.9
	16,000	6373857.5	20911605.7	17627.8	57834 a.D	7317.3	24006.8
	20, 000	6374188.2	20912690.7	17556 # 3	57599.3	8969.4	29427.2
END TILT	20.000	6374188.2	20912690.7	17556.3	57599.3	8969°4	29427 .2
Ì	24.000	6374601.1	20914045.5	17484 a.S.	57363.9	10638.5	34 90 3 . 1
	28.000	6375099.5	20915680.5	17412.5	57127.7	12331 .2	4 D4 56 .8
	32,000	637568E.2	20917605.5	17340.3	56890.9	14056.7	46117.6
	36.000	6376363.6	20919828 .0	17267.9	56653.3	15824.8	51918.8
	40.000	6377133.4	20922353,5	17195.3	56415.1	17647.0	57897 .D
	44.000	6377996.1	20925183.7	17122.5	56176.1	19535.2	64091.8
	48,000	6378950.4	20928315.0	17049.5	55936 .5	21501 48	70544.3
	52,000	6379992.4	20931733.5	16976.2	52696.2	23559 .2	77293 .8
	56, 000	6381115.5	20935418.2	16902.8	55455.2	25718 46	84 37 8 .7
	60.000	6382312 .3	20939344°7	16829.1	55213.6	27991 .6	91836 . 0
10 KMS.	62,913	6383227.7	20942348.0	16775.3	55037 42	29725 9	97526 .1
	64 . DOO	6383578 . 7	20943499.5	16755.3	54971.3	30391 .4	99709°3
	68. DDO	6384913.5	20947878 7	16681.2	54728 e4	32933 .5	108049.5
O MAXIMUM	.68 . 604g	6385121.1	20948559.7	16670.0	58691.6	33331 °1	109353.9
	72, 000	6386315.7	20952479.2	16607.0	54485 .8	35634 6	116911.5
· Ju Kits.	74.399	6387188.8	20955343.7	16562.3	54338.4	37338°2	122500.7
	76,000	6387784.7	20957298.7	16532 .5	5424D .6	38512 .4	126352 49
	80.000	£389319.3	20962333.5	16457.9	53995.7	41585.3	13643408
	34,000	6390918.5	20967580.2	16383.1	53750 • 2	44972.7	147220 *3
	88.000	6392580.1	7,15057905	16308.0	53504.1	48393.8	158772.3
	92, DDD	6394300.9	2097867745	16232.8	53257.04	52167.2	171152.1
	96.000	6396077.1	20984504 .7	16157.5	53010.0	56211.0	184419 a4
	100,000	639790440	20990498.5	16081 .9	52762.1	6054343	198632 8
	104.000	6399776.7	50396602	16006.1	52513.6	65181.2	213849 00

Table	Č-3	Trajectory and a (Tables for the Mission Cargo of 29,483,504 kg	or the Mission 29,483.504 kg	with an D (65,000 D	Inclination lbs)	n of 28.5°
			(Continued)	^			
; •	1	MDC/HCR I=28.5	.5 FUEL 3064K+524K (65K PAYLOAD)	24K (65K PAY	LOAD)	1 1 2 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	1
	,		APOLLO 13	POSITION	COORDINATES	ν .	
	SEC.	Σ	× -	≻ ∑	14	×	1 ± ±
	112,000	5403637.4	21009309+0	15854.1	52014.7	75440.4	247508.0
	116.000	6405613.8	21015793.2	15777.8	51764.5	81093.8	266055.7
	120,000	6407613.1 5409629.2	21022352.5 21028967.0	15701.3	51513 6	97117.3	285817 *8 306845 *1
	128,000	6411656.3	21035617.7	15547.9	51010.2	100336 .6	329188 °2
	132.600	6413688.6	21042285.2	15470.9	50757.7	107563.3	352897.9
	135,000	6415720.5	21048951.5	15393 8	50504 8	115222 °2	378025.6
	144,000	6419752°2	21062179.2	15239 °D	6° 3666 b	131874 0	432657.4
	148.000	6421734 ° F	21068681.0	15161.4	49742.2	140872.9	462181.6
	152,000	6423681.4	21075070.0	15083.6	4 9487 aD	150323.6	493187 °7
	-156 008	6425586.2	21681319 2	15005.7	49231.3	160227.8	525681.9
	164,000	6429237,1	21093297,5	34849.4	487184	181403.5	595155.7
	153, 000	6430968.6	21098978.0	14771.0	48461 -2	192677 .4	632143 49
	172.000	E432628.1	21104422.7	14697.4	48203.5	204410.3	670633.5
3	175, 000	6434209.1	21109609.7	14513.8	4 76 85 . T	215602 "9 229256	/10659*6 752152.3
	134,000	6437110.2	21119127.7	14455.9	47427.6	242370 42	795177°7
	188.000	5438418.2	21123419.2	14376.8	47168.1	255945 8	839717.2
	196,000	6440721.1	24130974.5	14218.2	46647.5	284482 9	933342.8
	195.988	8 4 4 0 6 0 4 4 8	21131807.0	14198.5	45583.1	288135.1	945325 40
SEPARATION	196.988	6440974°8	21131807.0	14198.5	45583.1	288135.1	945325.0
	200,000	644J634°4 6442535°7	21136862.2	14155.0	45385.5	314147.7	1030668.3
	206, 988	5443029.2	21138547.0	13999.4	45929 .7	325224 09	1067010.9
ORR IGNITION	206.988	6443029.2	21138547.0	13999.4	45929 °T	325224 9	1.06 70 10 .9
BEGIN MIN-H	236,988	644302942	21138547.0	13999.4	45929.7	325224 09	1067010.9
	216.000	6444192,2	211 42 3 62 0 7	13819.2	45338 6	359186.6	1178433.8
	224 * 000	6444787.2	21144315.00.	13658.7	4481201	390285.8	1280465.2
	232, 000	5444961.7	21144885.7	13497.8	44284 .0	422306.5	1385520 *0
	240-000	6444704 .]	21144042.2	13336.3	43754 ° 3	455275.b	1493586 a 3

Trajectory Tables for the Mission with an Inclination of 28.5° and a Cargo of 29,483.504 kg (65,000 lbs) Table C-3.

MDC/HCR I=28.5 FUEL 3064K+524K (65K PAYLOAD)

			APOLLO 1	13 POSITION	COORDINATES	ES	:
	TIME			>			Z
	SEC	*	F1	X	<u>L</u>	: Æ	F
	248,000	6444004.8	21141748.0	13174.4	43223.2	489221.3	1605056 .7
	256, 000	6442851.7	21137964 . 7	13012 • 1	42690 .5	524173.3	1719728 .7
	264.000	6441232.1	21132651.2	12849.3	42156.5	560163.1	1837805.3
	272,000	6439132.4	21125762.2	12686.1	41621 .1	597223 .6	1959395 0
	280.000	6436537.7	21117249.7	12522.5	41084.4	635390.1	2084613.1
	29.8 000	6433432 25.	21107061 27	12358.6	40545 °4	674699.7	2213581.7
	296,000	E429799.3	21095142.0	12194.2	40007.2	715192.1	2346430.9
	304,000	6425619.7	2108142945	12029.5	39468.9	756909.7	2483299.5
	312,000	6420873.7	21065858.5	11864.5	38925.4	799897 °E	2624335.8
!	320,000	. 6415539a4	21048357.5	11699 *1	38382 .9	844204 .3	2769699*0
	328.000	6409593.2	21028849.0	11533.4	37839.3	889882 .0	2919560.4
	336,000	6403009.2	21007248.0	11367.4	3.7.2 94.08	936987 • 2.	3074104.8
	344.000	6395759.4	20983462.5	11201.2	36749.3	985580°8	3233532 .8
	352,000	6387812.7	20957390.7	11034.7	36203 • 0	1035729.4	3398062 43
	360,000	6379135.4	20928922 • 0	10867.9	35655.8	1087505.6	3567931 .7
	358.000	6363630.0	20897933.0	10700.9	35107.8	1140988.5	3743400 .5
	376.000	6359439.2	20864301.7	10533.6	34559.1	1196230.3	3924640.0
	384,000	6348350.6	_20827921.,7	10366.1	34009 .6.	1253227.0	4111637.0
	392°000	633F392°2	20.788688°U	10198.5	33459°E	1311968.8	4304359.6
	400,000	6323532.2	20746496.7	10030.6	3290849	137244502	4502772 *8
INJECTION	401.026	6321816.0	20740866.0	10000	32838.2	1380326.9	4528631.4
	401.026	6321816.0	20740866.0	100001	32838 "2	1390326 9	4528631 .4

Table C-3. Trajectory Tables for the Mission with an Inclination of 28.5° and a Cargo of 29,483.504 kg (65,000 lbs)

TIME XDD1 11.637 - 57.849				(Continued)	(pen				
TITME ***CONTROLLER TO THE COMPONENTS ***CONTROLLER TO THE CONTROLLER		2	1DC/HCR I=28	FUEL	(65K	OAD			
TIME		ğ 5 6		•					
FET NAMES FOR TAKES FINE FINE FINE FINE FINE FINE FINE FINE		i ≥ ⊢	×	a Pot LO 1	VELOCITY	COMPONENTS		10t	
FFT-NFF ".000 ".000 ".000 ".17.632 -57.849 408.553 1340 600 16.963 53.13938 -17.447 -58.224 408.553 1340 FETN 11LT R.000 34.725 113.938 -17.747 -58.224 408.557 1340 FETN 11LT P.000 34.725 113.938 -17.747 -58.224 408.557 1340 FETN 11LT P.000 34.725 113.938 -17.747 -58.224 408.557 1340 FETN 11LT P.000 34.725 113.938 -17.747 -58.224 408.557 1340 FETN 11LT P.000 113.789 314.540 -17.891 -58.801 411.857 1340 FETN 11LT P.000 113.789 313.324 -17.891 -58.801 411.857 1340 FETN 11LT P.000 113.789 313.324 -17.891 -58.801 411.857 1340 FETN 11LT P.000 113.789 313.324 -17.891 -58.801 411.857 1340 FETN 11LT P.000 113.789 313.324 -17.891 -58.801 411.857 1340 FETN 11LT P.000 113.789 313.324 -17.891 -58.801 411.857 1340 FETN 11LT P.000 113.789 818.895 -18.788 -59.801 81.327 1340 FETN 11LT P.000 113.789 818.895 -18.381 -59.801 81.327 1340 FETN 11LT P.000 113.789 1117.621 -18.381 -59.801 81.327 1340 FETN 11LT P.000 113.789 1117.621 -18.381 -60.491 81.327 1370 FETN 11LT P.000 113.789 1117.621 -18.381 -60.491 81.327 1370 FETN 11LT P.000 113.789 1117.621 -18.381 -60.491 81.327 1472 FETN 11LT P.000 113.789 1117.621 -18.381 -60.491 81.327 1678 FETN 11LT P.000 113.789 1117.621 -18.381 -60.491 81.327 1678 FETN 11LT P.000 113.789 1117.621 -18.381 -60.491 81.327 1678 FETN 11LT P.000 113.789 1117.621 -18.381 -60.491 81.327 1678 FETN 11LT P.000 113.789 1117.621 -18.381 -60.491 81.327 1678 FETN 11LT P.000 1117.621 81.881 -60.491 81.328 -60.491 81.327 1678 FETN 11LT P.000 1117.621 81.881 -60.491 81.328 -60.491 81.328 1678 FETN 11LT P.000 1117.621 81.881 -60.491 81.328 -60.491 81.328 1708.891 81.328 1708.891 81.328 1708.891 81.328 1708.891 81.3291 81.328 1708.891 81.328 1708.891 81.328 1708.891 81.328 1708.891 61.338 1708.		SEC		_	ы	FT/SEC.	c)	FTZSEC	
## CORD 16.963 55.652 17.747 58.224 408.553 1340 ## CORD 16.963 113.938 17.747 58.224 408.557 1340 ## CORD 34.724 113.938 17.747 58.224 408.237 1340 ## CORD 27.824 23.938 17.747 58.224 409.233 1342 ## CORD 27.824 23.938 17.747 58.224 409.233 1342 ## CORD 15.789 373.324 17.913 58.769 411.357 1340 ## CORD 15.789 373.324 17.913 58.769 414.953 1361 ## CORD 15.789 373.324 17.913 58.769 414.953 1361 ## CORD 15.789 373.324 17.913 59.769 414.953 1361 ## CORD 15.789 344.625 18.021 59.476 448.306 1470 ## CORD 15.789 348.423 18.183 59.476 448.306 1470 ## CORD 277.943 888.927 18.183 59.476 448.306 1470 ## CORD 277.943 888.927 18.234 59.476 448.306 1470 ## CORD 277.943 888.927 18.336 59.476 59.476 448.306 1470 ## CORD 277.943 1170.418 18.436 50.655 57.657 1994 ## CORD 277.943 1170.418 18.436 50.655 57.657 1994 ## CORD 277.943 1170.418 18.436 50.655 57.657 1994 ## CORD 277.943 177.8620 18.436 50.655 57.657 1994 ## CORD 277.945 177.8620 18.436 57.657 1994 ## CORD 27	1 IF T - OF F	000*	000	0000	-17.632	-57.849	408.553		!
FOUN TILT ROUGH 16,963 113,938 -17,747 -58,224 408,557 1340 FOUN TILT ROUGH 34,728 113,938 -17,747 -58,224 408,557 1340 FOUND 34,728 113,938 -17,747 -58,224 408,557 1340 FOUND 53,300 174,870 -17,813 -58,769 411,357 1340 FOUND 135,522 4304,540 -17,913 -58,769 411,357 1340 FOUND 135,522 4304,540 -17,913 -58,769 411,953 1351 FOUND 135,522 444,625 -18,013 -58,769 411,953 1351 FOUND 155,522 444,625 -18,013 -58,769 411,953 1351 FOUND 157,977 518,132 -18,013 -59,810 419,886 137,891 FOUND 227,218 745,464 -18,23 -59,810 419,836 1379 FOUND 227,218 745,464 -18,23 -59,810 419,836 1379 FOUND 227,218 745,464 -18,23 -59,810 157,810 FOUND 227,218 745,464 -18,23 -59,810 157,810 FOUND 370,977 1110,918 -18,438 -60,819 58,481 1919 FOUND 370,977 1110,918 -18,438 -60,817 654,690 2147 FOUND 370,977 1110,918 -18,438 -60,817 654,690 2147 FOUND 370,977 1110,918 -18,438 -60,817 654,690 2147 FOUND 375,485 127,625 -18,537 -60,817 654,690 2147 FOUND 473,297 1137,620 -18,438 -60,817 654,690 2147 FOUND 473,297 1137,620 -18,438 -60,817 654,690 2147 FOUND 473,297 1137,620 -18,537 -61,317 743,046 2437 FOUND 473,459 127,639 -18,537 -61,317 743,046 2437 FOUND 473,459 127,539 -18,438 -61,317 654,690 2147 FOUND 473,459 127,639 -18,537 -61,317 743,049 2437 FOUND 473,459 127,339 137,620 -18,438 -61,378 -61,378 2491 FOUND 472,952 1377,639 -18,71 -61,378 -61,378 357 FOUND 472,959 137,439 -18,316 -61,371 657,990 3954 FOUND 472,959 137,439 -18,316 -61,371 657,990 3954 FOUND 472,959 137,439 -18,316 -61,371 657,990 3954		000	.000	*000	-17.632	-57.84.9.	408.553	1340 .395.	
RETN TILT R, OND 34,728 113,938 -17,747 -58,224 4008,557 1340 17,300 57,300 113,938 -17,747 -58,224 4008,557 1340 16,000 57,300 113,939 113,939 -17,747 -58,224 4008,234 1342 18,000 113,229 304,540 -17,913 -58,769 414,953 1361 ND TILT 70,000 113,789 313,324 -17,867 -58,769 414,953 1361 22,000 135,229 304,540 -17,913 -58,769 414,953 1361 32,000 157,977 518,132 -18,128 -59,876 414,953 1361 44,465 51,324 -17,867 -58,769 414,953 1361 48,000 113,229 414,953 114,919 -18,287 -59,820 481,332 1579 48,000 227,28 819,514 -18,235 -59,820 481,332 1579 48,000 227,28 819,514 -18,235 -59,820 481,332 1579 48,000 270,943 88,920 -18,28 -59,820 481,332 1579 56,000 307,975 1110,918 -18,387 -60,359 51,061 2024 58,000 320,973 1110,918 -18,387 -60,317 553,481 1994 7,000 31,75,918 1117,620 -18,38 -60,619 583,481 1994 7,000 31,75,918 1117,620 -18,38 -60,619 59,800 2147 80,000 31,75,918 1117,620 -18,48 -60,611 583,481 1994 7,000 31,75,918 1117,620 -18,595 -60,117 579,277 2789 80,000 31,75,918 1117,620 -18,595 -61,317 654,690 2147 80,000 427,952 1130,982 -18,336 -61,317 654,690 2147 80,000 427,952 1137,620 -18,88 -61,317 654,690 1147,278 2998 80,000 427,952 1137,620 -18,88 -61,317 654,690 1147,278 -61,317 654,690 1147,278 -61,317 61,316 61,317 61,316 61,317 61,316 61,317 61,316 61,317 61,316 61,317 61,316 61,317 61,316 61,317 61,316 61,317 61,316 61,317 61,316 61,317 61,316 61,317 61,316 61,317 61,316 61,317 61,316 61,317 61,316 61,317 61,316 61,317 61,317 61,316 61,317 61,316 61,317 61,316 61,317 61,316 61,317 61,317 61,316 61,317		4.000	16,963	55.652	-17.689	- 58 036 -	408°552	1340,395	
FETN TILT R.ODD 34,728 113,938 -17,447 -584,024 408,254 1340 16,000 72,668 278,413 -17,813 -58,699 411,357 1349 16,000 92,824 304,540 -17,813 -58,699 411,357 1349 20,000 113,89 373,324 -17,813 -58,699 419,88 5 1371 24,000 113,89 373,324 -17,813 -58,494 41,953 1361 32,000 157,977 593,324 -17,817 -58,494 41,953 1371 36,000 180,847 593,324 -17,817 -58,494 41,953 1471 40,000 227,28 819 11,82 -18,128 -59,476 418,306 1470 22,000 227,28 819,52 -18,128 -59,476 418,306 1470 40,000 227,28 819,52 -18,128 -59,476 418,326 1470 52,000 24,000 24,72 187,464 -18,28 -59,494 61,51 1787 40,000 270,943 819,274 -18,28 -59,494 61,32 1579 40,000 270,943 819,82 -18,18 -56,49 1 607,59 1193 64,000 370,975 1117,62 -18,48 -60,611 607,545 1193 64,000 375,48 1137,62 -18,48 -60,611 607,54 1193 68,604 34,207 375,48 1137,62 -18,48 -60,61 1 607,54 218 68,000 41,72 11137,62 -18,48 -60,81 60,74 218 69,000 41,72 11 1377,62 -18,47 -61,41 60,71 218 69,000 41,72 11 1377,62 -18,47 -61,41 60,71 218 60,000 41,72 11 1377,62 -18,47 -61,41 60,71 218 60,000 41,72 11 1377,62 -18,47 -61,41 60,71 218 60,000 41,72 11 1377,62 -18,47 -61,47 -61,41 218 60,000 41,72 11 1377,62 -18,47 -61,41 60,71 218 60,000 41,72 11 1377,62 -18,47 -61,47 -6		8° NON	34.728	113.938	-17.747	- 58 - 224	408.557	1340-409	
TILL 70.00 72.668 304.540 - 17.813 - 58.769 411.357 1389 20,000 92.824 304.540 - 17.813 - 58.769 414.953 1361 24,000 135.522 444.540 - 17.813 - 58.769 414.953 1361 28,000 135.522 444.655 - 18.021 - 59.126 426.877 1400 372,000 155.927 518.132 - 18.075 - 59.302 49.66.877 1400 40,000 150.977 518.132 - 18.075 - 59.302 49.63.283 41,000 227.218 745.469 - 18.233 - 59.820 491.332 1579 44,000 227.218 745.469 - 18.233 - 59.820 491.332 1579 48,000 270.943 898.920 - 18.335 - 60.491 57.555 1148 60,000 307.975 1010.418 - 18.336 - 60.491 57.555 1148 64,000 307.975 1010.418 - 18.434 - 60.491 60.655 61.061 64,000 37.975 1010.418 - 18.436 - 60.491 60.655 61.061 64,000 37.975 1010.418 - 18.436 - 60.491 60.655 61.061 64,000 37.975 1010.418 - 18.436 - 60.491 60.655 61.061 64,000 37.975 1010.418 - 18.436 - 60.491 60.655 61.061 64,000 37.975 1010.418 - 18.436 - 60.491 60.61 64,000 37.975 1010.418 - 18.436 - 60.491 60.61 64,000 37.975 1010.66.88 - 18.436 - 60.491 60.61 67.600 37.975 1010.418 - 18.545 - 60.491 60.61 67.600 37.975 1017.662 - 18.537 - 61.017 67.000 37.975 1017.662 - 18.545 - 61.807 67.000 37.975 1017.662 - 18.545 - 61.807 67.000 37.975 1017.662 - 18.545 - 61.807 67.000 37.975 1017.662 - 18.545 - 61.807 67.000 37.975 1017.662 - 18.545 - 61.807 67.000 37.975 1017.662 - 18.545 - 61.807 67.000 37.975 1017.662 - 18.635 - 61.207 67.000 37.975 1017.662 - 18.635 - 61.207 67.000 37.975 1017.662 - 18.635 - 61.007 67.000 37.975 1017.662 - 18.635 - 61.207 67.000 37.975 1017.662 - 18.635 - 61.207 67.000 37.975 1017.662 - 18.635 - 61.207 67.000 37.975 1017.862 - 18.770 - 61.809 67.000 37.975 1017.862 - 18.770 - 61.805 67.000 37.975 1017.862 - 18.770 - 61.009 67.000 37.975 1017.862 - 18.770 - 61.009 67.000 37.975 1017.862 - 18.770 - 61.009 67.000 37.975 1017.862 - 18.770 - 61.009 67.000 37.975 1017.862 - 18.770 - 61.009 67.000 37.975 1017.862 - 18.770 - 61.009 67.000 37.975 1017.862 - 18.770 - 61.009 67.000 37.975 1017.862 - 18.770 - 61.009 67.000 37.97	BEGIN TILT	8.000	34.728	113.938	-17.747	-58°224	408.557	1540.409	
711.17 70.000 92.824 304.540 -17.913 -58.769 414.953 1361 361 371 35.824 304.540 -17.913 -58.769 414.953 1361 371 35.824 304.540 -17.913 -58.769 414.953 1361 371 35.826 1371 37.826 1371	:	1000 21	0000000 000000	228.013	-17.858	יים ביים מני מנו	411,357	1349.598	l
TTLT 70,000 92,824 304,540 -17,913 -58,769 414,953 1361 24,000 113,789 373,324 -17,967 -58,348 419,485 1377 28,000 157,327 518,432 -18,075 -59,312 428,411 1400 32,000 157,327 518,432 -18,128 -59,3476 448,306 1470 40,000 224,218 745,464 -18,285 -59,649 463,280 1519 40,000 249,88 819,514 -18,285 -59,690 502,805 1578 50,000 249,88 819,514 -18,285 -59,690 502,805 1578 50,000 249,88 819,514 -18,285 -59,690 502,805 1578 50,000 270,943 888,920 -18,336 -60,491 5132,805 1914 60,000 270,975 1010,418 -18,387 -60,491 583,814 1914 60,600 370,975 1010,418 -18,484 -60,655 617,061 2024 64,000 325,187 1056,885 -18,484 -60,655 617,061 2024 64,000 325,187 1056,885 -18,484 -60,655 617,061 2024 64,000 325,187 1130,962 -18,486 -60,491 605,443 1914 66,000 325,187 1130,962 -18,484 -60,655 617,061 2024 64,000 325,187 1130,962 -18,484 -60,655 617,061 2024 64,000 325,187 1130,962 -18,484 -60,655 617,061 2024 64,000 325,187 1130,962 -18,484 -60,655 617,061 2024 64,000 407,711 1337,656 -18,877 -61,615 911,005,514 373,046 274,000 62,669 100 407,711 1337,656 -18,777 -61,615 911,005,514 375,010 452,552 1347,279 -61,877 -61,615 911,005,514 375,017 119,000 101,174,279 119,016 -62,207 119,019 3914		20.000	97.374	304.540	-17.913	28.769	414 953	1361 4396	
24,000 113,789 373,324 -17,967 -58,948 419,886 1377 78,000 157,927 5184,132 -18,021 -59,126 426,253 1431 36,000 180,847 593,329 -18,128 -59,476 418,306 1470 40,000 227,218 745,464 -18,28 -59,820 481,322 1431 40,000 249,788 818,920 -18,335 -59,820 481,332 1579 41,000 270,943 888,920 -18,335 -59,820 481,332 1579 56,000 270,943 888,920 -18,335 -59,820 481,332 1579 56,000 370,975 1010,418 -18,336 -60,491 583,481 1914 66,000 370,975 1010,418 -18,488 -60,491 583,481 1914 67,000 370,975 1010,418 -18,488 -60,491 583,481 1914 68,000 375,187 1172,625 -18,488 -60,655 617,061 2024 68,000 375,187 1172,625 -18,537 -60,817 61,051 2024 68,000 375,485 1210,265 -18,537 -60,817 743,204 2147 68,000 375,485 1210,265 -18,615 -60,878 603,277 2789 69,000 407,711 1377,636 -18,675 -61,073 72,899 2374 69,000 477,713 1375,636 -18,777 -61,605 911,032 2988 69,000 477,713 1375,636 -18,777 -61,605 911,032 2988 69,000 477,713 1377,636 -18,777 -61,605 911,032 2988 69,000 477,713 1377,636 -18,777 -61,605 911,005 511,005 911,005 511,005 911		20.000	92,824	304.540	-17,913	-58.769	414.953	1361,396	
78,000 135,522 444,625 -18,021 -59,126 426,877 1400 32,000 167,977 513,132 -18,075 -59,302 436,253 1413 36,000 180,447 593,329 -18,181 -59,820 481,332 1473 44,000 227,218 745,464 -18,233 -59,820 481,332 1579 48,000 249,788 819,514 -18,285 -59,820 481,332 1579 55,000 249,788 819,514 -18,285 -59,820 481,332 1579 55,000 270,943 918,514 -18,285 -60,491 593,481 1914 56,000 307,975 1010,418 -18,438 -60,491 593,481 1914 68,000 375,975 1051,608 -18,474 -60,611 607,545 1993 68,000 340,723 1130,982 -18,488 -60,842 660,743 2167 68,000 375,485 1231,906 -18,595 724,690 2774 76,000 375,485 1231,906 -18,615 -61,073 72,046 76,000 375,485 1231,906 -18,615 -61,073 72,046 76,000 407,711 1337,636 -18,730 -61,451 950,274 2789 78,000 407,711 1337,636 -18,730 -61,451 950,274 2789 78,000 407,711 1337,636 -18,730 -61,451 950,274 2789 78,000 407,711 1337,636 -18,730 -61,451 950,274 2789 78,000 407,711 1337,636 -18,730 -61,451 950,274 2789 78,000 407,711 1337,636 -18,730 -61,451 950,274 2789 78,000 407,711 1337,636 -18,730 -61,605 911,005 594 3676		24,000	113.789	373.324	-17.967	~ 58 « 948	419.886	1377.4580.	;
32,000 157,927 518,132 -18,075 -59,302 438,253 1443 32,000 180,847 593,329 -18,128 -59,476 448,306 1470 48,000 227,218 745,464 -18,233 -59,820 481,332 1579 48,000 249,788 819,514 -18,235 -59,820 481,332 1579 55,000 249,788 819,514 -18,285 -59,890 50,2505 1648 55,000 270,943 882,324 -18,385 -60,491 583,481 1914 66,000 307,975 1010,418 -18,438 -60,611 607,842 1913 66,000 325,187 1056,885 -18,488 -60,651 607,842 1993 68,000 325,187 1056,885 -18,488 -60,611 607,845 1993 44,000 35,234 1130,982 -18,488 -60,812 660,743 2167 74,399 358,889 1210,265 -18,645 -60,978 596,603 2437 76,000 375,485 1210,265 -18,645 -60,978 596,603 2437 76,000 375,485 1210,265 -18,645 -61,073 72,0899 2374 80,000 407,711 1337,636 -18,635 -61,295 794,237 2605 80,000 407,711 1337,636 -18,777 -61,605 911,032 2988 66,000 402,599 1478,278 -18,891 -61,378 976,405 3203 92,000 402,595 1478,278 -18,891 -61,378 976,405 3203 94,000 405,579 1478,278 -18,891 -61,378 976,405 3203 92,000 405,579 1478,278 -18,891 -61,378 976,405 3203 96,000 405,579 1478,278 -18,891 -61,378 976,405 3203		28.000	135,522	444.625	-18.021	-59.12F	426.877	1400.515	
36.000 180.847 593.329 -18.128 -59.476 448.306 1470 40.000 227.218 745.220 -18.233 -59.859 481.332 1579 48.000 227.218 745.250 -18.235 -59.859 481.332 1579 48.000 249.788 819.514 -18.236 -59.899 52.505 1648 52.000 270.943 888.920 -18.387 -60.159 52.505 1648 60.000 270.943 888.920 -18.387 -60.159 52.462 1728 64.000 270.943 888.920 -18.438 -60.611 607.549 1914 66.000 327.975 1010.418 -18.434 -60.651 607.545 1991 68.000 325.187 1065.885 -18.48 -60.651 607.595 1993 64.000 325.187 1065.885 -18.545 -60.817 654.690 2147 68.000 342.176 1172.625 -18.545 -60.817 654.690 2147 74.399 368.889 1210.625 -18.545 -61.073 72.899 2374 74.399 368.889 1210.655 -18.685 -61.377 743.046 2437 80.000 375.485 1210.65 -18.683 -61.295 794.237 2605 80.000 407.711 1337.636 -18.683 -61.295 794.237 2605 92.000 437.297 1434.208 -18.870 -61.899 1046.284 3432 92.000 450.579 1478.278 -18.870 -61.999 1046.284 3432 92.000 450.579 1478.278 -18.870 -61.999 1046.284 3432		. 32, 000	1.57 . 927	518-132	- 18.075	- 59 .302	435.253	1431.275	1
### Union 2014-070 669-520 -18-181 -59-8649 ### 1572 ### 000 227-218		36.000	180.847	593,329	-18,128	-59.476	448.306	1470,819	
### ## ## ### ### ### ### ### ### ###		40° 000	204 - 070	669.520	10%,100	- 59 ab 49	465.280	200	
F2.000 270.943 888.920 -18.356 -60.159 F26.627 1727		44.000	227.218	745 464	-18,233	-59,820	481.332	15/9.1/3	
Character Char		4 A., UUU 5 2 . D.D.D	270.043	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	- 18,336	-60,159	F2F 6527	1727,780	
60,000 307,975 1U10,418 -18,438 -60,491 583,481 1914 62,913 320,530 1051,608 -18,448 -60,651 607,545 1993 64,000 347,2176 1122,625 -18,488 -60,655 617,061 2147 68,000 347,2176 1130,995 -18,545 -60,842 660,743 2147 76,000 358,938 1177,620 -18,545 -60,842 660,743 2167 76,000 375,485 1210,265 -18,615 -61,073 727,899 2374 76,000 375,485 1231,906 -18,615 -61,073 727,899 2374 76,000 375,485 1285,392 -18,683 -61,295 794,237 2605 80,000 375,485 1285,392 -18,635 -61,295 794,237 2605 80,000 375,295 1287,636 -18,730 -61,295 794,237 2605 92,000 437,297 1434,700 -18,870 -61,909 1046,284 3432 103,000 462,669 1517,939 -18,961 -67,059 1120,554 3676		55.000	230.268	952 \$324	-18.387	-60 -326	553 4574	1816.187	
0 KMS 62,913 320,530 1051,608 -18,474 -60,655 617,545 1993 64,000 347,2176 1122,625 -18,488 -60,655 617,261 2147 6A,000 347,2176 1122,625 -18,545 -60,817 654,690 2147 MAXTMUM 6F FOU 344,723 1130,992 -18,545 -60,817 654,690 2147 72,000 358,938 1177,620 -18,545 -60,842 660,743 2167 76,000 358,889 1210,265 -18,615 -61,073 727,899 2374 76,000 375,485 1210,265 -18,615 -61,073 73,646 2437 80,000 375,485 1210,265 -18,615 -61,37 74,289 274 80,000 375,485 123,636 -18,730 -61,451 74,28 274 278 80,000 40,000 427,952 18,78 -18,77 -61,451 376,405 376,405 376,405 376,405		60,000	307,975	1010.418	-18.438	-60.491	583,481	1914,309	
64,000 325,187 1066,885 -18,488 -60,655 617,061 2107 68,100 347,176 1122,625 -18,537 -60,817 654,690 2147 68,604 34,723 1130,995 -18,586 -60,878 690,743 2167 76,000 355,485 1210,265 -18,615 -61,073 727,899 2374 76,000 375,485 1231,906 -18,615 -61,073 73,094 2437 80,000 375,485 1231,906 -18,635 -61,137 743,094 2437 80,000 375,485 1285,392 -18,683 -61,295 794,237 2605 80,000 407,711 1337,636 -18,730 -61,491 950,274 2789 92,000 437,297 1434,700 -18,887 -61,909 1046,284 3432 103,000 462,669 1517,939 -18,915 -67,059 1120,554 3676		57, 913	320.530	1051 .608	- 18 .474	- 60 .511	607.545	1993 259	
## KM C		64.00D	325,187	1066.885	-18,488	-60.655	61/2051	2147,933	
4 KMC, 74,399 368,889 1210,265 -18,615 -61,073 727,899 2374 75,000 375,485 1210,265 -18,615 -61,073 727,899 2374 2374 285 80,000 375,485 1231,906 -18,635 -61,137 743,046 2437 80,000 407,711 1337,636 -18,730 -61,495 794,237 2605 92,000 407,711 1337,636 -18,730 -61,495 915,274 2789 92,000 427,959 1387,636 -18,730 -61,495 915,635 915,036 92,000 452,659 1478,278 -18,870 -61,909 1046,284 3432 92,000 462,669 1517,939 -18,915 -62,059 1120,554 3576 9104,000 473,459 1517,939 -18,961 -62,027 1199,099 3934		5.5 c 0.01	344. 723	1130,982	-18.545	-60,842	660.743	2167,792	i
XMC. 74,399 368.889 1210,265 -18,615 -61,073 727,899 2374 76,000 375,485 1231,906 -18,635 -61,137 743,014 2437 80,000 391,788 1285,392 -18,683 -61,295 794,237 2605 94,000 497,211 1387,636 -18,770 -61,451 350,274 2789 92,000 437,297 1434,270 -61,451 360,274 2789 95,000 437,297 1434,270 -61,451 312,032 298 95,000 437,297 1434,270 -61,451 312,032 298 100,000 450,579 1478,278 -18,870 -61,3758 3120,628 3576 104,000 452,669 1517,939 -18,916 -62,059 1120,554 3576 104,000 473,459 1553,344 -18,916 -62,059 1199,099 3934 104,000 473,459 1553,344 -18,966 -62,207 1199,099 3934		7.2, 000	358.938	1177.520	-18.585	- 60 . 978	596.603	22.85 04.82	
000 375,485 1231,906 -18,635 -61,137 743,046 2437 000 391,788 1275,392 -18,83 -61,295 794,237 2605 000 477,711 1337,636 -18,730 -61,491 976,277 2605 000 477,297 1434,707 -18,874 -61,909 1046,284 3432 000 452,669 1517,939 -18,870 -61,909 1046,284 3432 000 462,669 1517,939 -18,915 -67,059 1120,554 3576 000 473,459 159,339 -18,915 -67,059 1120,554 3576 000 473,459 159,939 199,91739		74.399	368.889	1210,265	-18.615	-61.073	727.899	2374 .996	
000 391,788 1275,392 -18,683 -61,295 794,237 2605 000 407,711 1337,636 -18,730 -61,451 950,274 2789 000 427,952 1387,639 -18,777 -61,605 911,032 2988 000 437,297 1434,700 -18,870 -61,909 1046,284 3432 000 462,669 1517,939 -18,916 -67,059 1120,554 3676		ů	375.485	1231 .906	-18,635	-61 «13.7	743.046	2437 815	į
000 407,711 1337,636 -18,730 -61,451 850,274 2789 000 422,952 1387,639 -18,777 -61,605 911,032 2988 000 437,297 1434,700 -18,877 -61,909 1046,405 3203 000 450,579 1478,278 -18,870 -61,909 1046,284 3432 000 462,669 1517,939 -18,915 -62,059 1120,659 354		80° 000	391,788	1295.392	-18,683	9	794 .237	2605.765	
000 422,952 1387,639 -18,777 -61,605 911,603 2988 000 437,297 1434,700 -18,824 -61,758 976,405,3203 000 450,579 1478,278 -18,870 -61,909 1046,284 3432 000 462,669 1517,939 -18,915 -62,005 1120,554 3575		94.000	407 ° 711	1337.636		61	950 °274	2789 a614	-
000 437,297 1434,700 18,824 61,758 1976,405 5203 000 450,579 1478,278 18,870 61,909 1046,284 3432 000 462,669 1517,939 18,915 62,059 1120,654 3676 000 473,459 1553,344 18,915 62,207 1199,099 3934		88.000	422,952	1387 639	-18,777	9	9116032	2988,951	
000 450,579 1478,278 -18.870 -61.909 1046,284 5452 000 462,669 1517,939 -18.916 -62.059 1120.554 3676 000 473,459 1553,344 -19.961 -62.207 1199,099 3934		92° 000	437.297	1434.700	-18.824	-61 .758	976 405	3203 0427	
000 462,869 1517,939 - 18,916 - 67,0121 20,029 934 98,0 - 67,020 934 98,0 - 67,020 97,0 98,0 98,0 98,0 98,0 98,0 98,0 98,0 98		96.000	450.579	1478,278	-18.870	-61,909	1046.284	3452.689	
100 PUT 100: 100 PUT 1		100, 000	462 4 56 3	1517.959	180915	בים בים בים	1100 000	7074 050	1
		104.000	473,459	1553.344		-62.4207	250,251	3354 0030	

Table C-3. Trajectory Tables for the Mission with an Inclination of 28.5° and a Cargo of 29,483.504 kg (65,000 lbs)

MOCZHCR_1=28.5 FUEL 3064K+524K (65K PAYLOAD)

			APOLLO 13	VEL OCITY	COMPONENTS	S		
	321-	OGX	,	YDOT			ZDOT	
	SEC	M/SEC	F1/SEC	M/SEC.	FT/SEC	MISEC	FT/SEC	
			,	:			,	
	112,000	490.757	1610.094	-19.050	-62 4 98	1368-377	4489.425	
	116.000	497,200	1631.234	-19.093	-62 .642	1458 955	4 786 . 597	
	120,000	502,164	1647.519	-19.136	-62 . 784	1553.430	5096 .556	
4	124.000	5.05,650	1658,956	-19,179	-62.924	1651.769	5419.191	
	124,000	507 . 672	1665,590	-19,221	-63,062	1753,966	5754 4481	
	132.000	5.08, 25.7	1667,509	-19.263	- 613 - 199	1860.052	6102.532	1
	136,000	507,377	1664.621	-19.304	- 63 * 3 35	1969.909	64 F 2 . 956	
•	1 40.000	5.04 . 36.0	1654 . 723	-19.345	-63.468	2091.365	6828.626	
	144.000	499,022	1637.210	-19,385	-63.601	2193 4 50	7196 4358	
	148.000	491,486	1612.487	-19.425	-63.731	2306 - 117	7565.999	
	152,000	481,855	1590.888	-19.465	-63.860	2419.290	7937 .304	
	156,000	4.70,222	1542.722	-19.503	-63.938	25.32 # 904	.8,310,051	
	150,000	456,674	1498.276	-19.542	-64.114	2646.897	8684 "046	
	164.000	441,294	1447.816	-19 .58U.	64 .238	2761.218	9059.113	
	169,000	424,157	1391,591	-19.617	-64 .351	2875.817	9435 °0 97	
	172.000	4.05,333	1329 832	-19,654	-64 • 482	2990,653	9811,854	
	176.000	384,888	1262 . 755	-19.690	-64.501	3105.686	10189 . 258	
	180,000	362,883	1190.562	-19.726	-64.719	32.20 . 8.81	10567, 194	-
	194.000	339,378	1113.445	-19.762	-64.836	3336.205	10945 .554	
	188.000	314.426	1031-580	-19,797	-64,951	3451.630	11324.245	
	192,000	288.077	945.136	-19.831	-65.064	3567 0128	11703 - 177	
	1.96 • 000	260,382	85 4 a.2.70	- 19,866	-65.176	3682.676	12082.272	
	195.988	253.339	831.165	-19.874	-65.203	3711.218	12175 4913	
SEPARATION	196.988	253,339	831.165	-19,874	-65.203	3711.218	12175.913	
	200, 000	224 477	736.473	-19.899	-65.296	3709 8905	12171 .604	
	204-000	186.169	610.790	-19.932	-65,395	3708,084	12165,631	
	206,988	157,568	516.955	-19.957	- 65 .475	3706.668	12160 4984	
ORB IGNITION	-206 - 988	157,568	516,955	-19,957	-65.475	3706.668	12160.984	
REGIN MIN-H	206,988	157,568	516,955	-19,957	- 65.475	3706 . 668	12160.984	
	208-000	151,205	496.078	-19.965	-65 502	3720 426	12206.122	!
	216, 000	100.304	329.080	- 20.029	-65.711	3830.874	12568 .486	
THE RESIDENCE TO A STREET WAS A STREET OF THE PARTY OF TH	224.000	48,272	158,372	-20.031	-65,915	3944.445	12941.091	
	232,000	616°h-	-16.334	- 20 • 151	-65.112	4061 .289	13324 438	
	240-000	- 59,542	-195,348	-20.209	-6E.303	4181 .572	13719,069	

Table C-3. Trajectory Tables for the Mission with an Inclination of 28.5° and a Cargo of 29,483.504 kg (65,000 lbs)

(Continued)

MDC/HCR I=28.5 FUEL 3D64K+524K (65K PAYLOAD)

	1		AFOLLO	13 VELOCITY	COMPONENTS		, ,
	.: C Σ. I., 	J J S F M	FIZE	MINEC	FIVSEC	Z ZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZ	ZUUI FT/SFC
	3 	3	3))))	
	248,000	-115.520	- 379 • 003,	-20.266	- 66 . 488	4305,474	14125.570
	256, 000	-173.022	-567.656	-20.320	- 66 4657	4433 .189	1 4544 -5-84
	264 • 000	-237,165	- 761 ,695	-20.373	-66.840	4564,932	14976,810
	272, 000	-293-078	-961 .541	-20.424	-67 •007	4 700 . 93 5.	15423-015
	280.000	-355.900	-1167,650	-20.473	-67,168	4841,456	15884,042
	784° 000-	-423 -782	-1380.52 0	- 20-520	- 67 - 323	4 986 - 778	16350 .819
	296.000	-487.893	-1600,698	-20.565	-67.472	5137,214	16854,377
	304, 000	-557.413	-1828.784	-20*609	- 67 - 615	5293,113	17365 4856
	312.000	-629,547	-2065.442	-20,651	-67,752	5454,863	17896 . 532
	320, 000	-704.517	-2311 408	- 20 4691	-67.883	5622 #899	18447.831
	328 000	-782,575	-2567,502	-20.729	-68,008	5797,710	19021.358
	336, 000	-863,999	- 2834 . 644	- 20-165	-68-127	5979.849	1.9618.927
	344.000	-949,107	-3113,869	-20.800	-68,240	6169,945	20242.601
	352, 000	-1038.257	-3406-354	- 20 .832	-68.347	6368.716	20894 .736.
	360,000	-1131,857	-3713.440	-20.863	-68.449	6576,987	21578.043
	368, 040	-12304314	-4036*463	- 20.892	- 68 . 545	6795 • 136	22293-752
	3.76 . 000	-1333,050	-4373,523	-20.920	-68.635	7015.093	23015,398
	384,000	1439.777	-4723 -677	20 • 946	- 68.71.9	7233.87L	23733 a 174
	392,000	-1550.482	-5086,884	-20.970	-68.798	7451 . 368	2446.746
	430° 000	-1665.150	-5463.091	- 20 * 992	-68.871	7567 490	25155 *808.
INJECTION	401.026	-1680.143	-5512,282	-20°895	-68.880	7695 106	25246.410
	401.026	-1683.143	-5512 °282	- 20 4995	-58.830	7695 .106	25246 410

Table C-3. Trajectory Tables for the Mission with an Inclination of 28.5° and a Cargo of 29,483.504 kg (65,000 lbs)

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(Continued)

MOC/HCR I=28.5 FUEL 3064K+524K (65K PAYLOAD)

a contract of the second secon			APOLLO.13 ACCELERATION COMPONENTS	CELERATION C	COMPONENTS			
	TIME	TODOX		Y0001	. 10	Z000Z	TC .	
And a support of the	SEC	M/SEC**2	FI/SEC**2	M/SEC**2	F1/SEC**2	M/SEC**2	FT/SEC **2	
					:			
LIFT-OFF	000*	4,114	13.498	- «۱۱) 4	C #0"-	001	002	
The same of the sa	000	4114	13a498	n14	-,047	001	002	
	4 . 000	4 , 3 4 1	14.241	014	L #0 " -	000.	. 002	
	8* 000	4 * 5 4 2	14 4 903	014	- 0047	.002	•006	
BEGIN TILT	8.000	4 * 5 4 2	14.903	034	- "O47	° 0.02	900.	
	12,000	4.243	15.561	014	9 40° -	8 72 8	1 0 1 4 3	
	16.000	4 , 940	16,209	D14	-,045	.713	2,338	
	. 20° 000.	5.138	16.856	٠,014	540*-	1 .087	3,567	
END TILT	20,000	5,138	16.856	014	2 * 0 4 S	1 . 087	3.567	
	24,000	5,338	17.514	014	- 045	1.476	4 .843	
	28.000	5,526	18,128	013	h h () * -	2,033	6.671	
	32,000	5.673	1.18 . 61.1	013	4 th O = -	2 .667	8 *751	
	36.000	5,778	18.957	013	- 0143	3,369	11.054	
	4.0,000	5.812	1.9.057	D13	D & 3	4 .123	13 - 527	
	44.000	5,751	18.867	013	043	4 ° 908	16.102	
	48.000	5.486	17,999	013	- * D 4 2	5.667	18.592	
	52.000	5.075	16.650	013	042	6 * 389	20°862	
	56.000	4.575	15,010	013.	- ° 042	7 .078.	23 *221	
	60.000	4,333	14.217	013	- . 0 4 1	7.910	25.952	
LO KMS	52,913	4 .2 92.	14.081	012	041	8.619	28 *279	
	64.000	4.217	14.032	- • 012	-,04]	8 . 8 92	29,175	
	5.8 . 0.00	4 .218	13.839	012	040	9.932	32 ,586	
O MEXIMUM	68.604	4.210	13,811	012	060"-	10.095	33,119	
	72,000	4.164	13.660.	- 4 012	0+0*-	11 .035	36 .202	
Jt KES.	74.399	4.131	13,554	012	- ° 040	11.725	38.467	
	76.000	4.109	13.479	012	- "040	12 .197	40 °U 15	
	80°000	4°039	13,251	012	e × 0 ° -	13,405	43.979	
****	84.000	3 2 902	12.802	012	- 039	14.600	47.899	
	8 8 . DOD	3,706	12,158	012	038	15.770	51,740	
	92,000	3.460	.11.350	012	038	16.911	55 # 83	
	000°96	3,176	10.421	011	038	18.024	59,132	
	100,000	2.864	9,396	011	- "037	19.107	62 .687	
	104.000	2 * 2 2 5	8 . 285	011	N37	20 . 155	66.125	
****	108,000	2,163	7.097	011	9£0°-	21 - 162	69.430	

Table C-3. Trajectory Tables for the Mission with an Inclination of 28.5° and a Cargo of 29,483.504 kg (65,000 lbs)

			DC/HCR I=28.5	FUEL 3064K+5	24K (65K PAY	rloadi		
TIME XDDOT 1.796 5.891 011 036 22.154 112. DOD 1.796 5.891 011 036 22.154 112. DOD 1.796 5.891 011 036 22.154 112. DOD 1.426 4.678 011 035 22.154 120. DOD 1.426 4.678 011 035 22.154 120. DOD 1.426 3.466 011 035 22.154 120. DOD 035 22.154 120. DOD 035 22.056 120. DOD 025 22.056 120. DOD 025 22.056 120. DOD 025 22.056 120. DOD 025 120. DOD		7 IME			,			
THE XDD01 SEC MYSEC**2 FISEC**2 MYSEC**2 HYSEC**2 TOD01 112, DD0 1, 796 5, 391 - , 111 - , 036 22 , 154 116, DD0 1, 796 5, 391 - , 111 - , 036 22 , 154 116, DD0 1, 796 5, 391 - , 111 - , 036 22 , 154 116, DD0 1, 796 5, 391 - , 111 - , 036 22 , 154 116, DD0 1, 796 5, 391 - , 111 - , 036 22 , 154 124, DD0 1, 796 5, 391 - , 111 - , 036 22 , 154 124, DD0 1, 656 2 - 256 - , 111 - , 035 24 , 104 125, DD0 1, 796 5, 391 - , 111 - , 035 24 , 104 126, DD0 1, 796 7, 746 7, 101 - , 037 2 8, 037 126, DD0 1, 796 7, 746 7, 1010 - , 037 126, DD0 1, 78 1 - , 102 1 - , 103 2 8, 037 126, DD0 1, 78 1 - , 102 1 - , 103 2 8, 751 126, DD0 1, 78 1 - , 103 3 46 - , 010 - , 037 126, DD0 1, 78 1 - , 103 3 46 - , 010 - , 037 126, DD0 1, 78 1 - , 103 3 46 - , 010 1 - , 037 126, DD0 1, 78 1 - , 103 3 46 - , 010 1 - , 037 126, DD0 1, 78 1 - , 103 3 46 - , 010 1 - , 037 126, DD0 1, 103 1 - , 103 1 - , 003 126, DD0 1, 103 1 - , 103 1 - , 003 126, DD0 1, 103 1 - , 103 1 - , 003 126, DD0 1, 100 1 - , 103 1 - , 003 126, DD0 1, 100 1 - , 103 1 - , 003 126, DD0 1, 100 1 - , 103 1 - , 103 126, DD0 1, 100 1 - , 103 127, DD0 1, 100 1 - , 103 127, DD0 1, 100 1 - , 103 128, DD0		T IME		5				
NDDOT NDDOT NDDOT NDDOT NDDOT NDDOT NODOT NODOT NODOT NODOT NDDOT NDDO		1 IME			CELERATION C	COMPONENTS		
112,000 1,796 5,891 -,011 -,036 22,154 116,000 1,426 4,678 -,011 -,035 24,104 22,154 124,000 1,426 2,256 -,011 -,035 24,104 27,4104 27		SEC	XDD01 M/SFC**2	F1/SEC**2	YDD(M/SEC**2	_	ZnDO M/SEC**2	T FT/SEC**2
116.00u		112,000	1 . 796		-,011	036	22 a 1 5 4	72 .684
120, 000		116.000	1.426	4.678	011	036	23.133	75.896
124,000 .688 2,256 -,011 -,035 25,066 122,000 -,325 -,105 -,010 -,034 27,012 132,000 -,453 -1,517 -,010 -,034 27,163 140,000 -1,051 -2,244 -,010 -,033 28,097 140,000 -1,514 -5,294 -,010 -,033 28,097 148,000 -2,562 -8,733 -,010 -,033 28,453 156,000 -3,151 -10,338 -,010 -,032 28,453 156,000 -3,151 -11,374 -,010 -,032 28,453 156,000 -3,151 -11,374 -,010 -,032 28,453 156,000 -4,493 -14,374 -,010 -,031 28,681 156,000 -4,493 -14,374 -,010 -,031 28,486 156,000 -4,493 -14,47 -,010 -,031 28,486 156,000 -4,493 -14,47 -,010 </td <td></td> <td>120,000</td> <td>1.055</td> <td>3.456</td> <td>011</td> <td>- *032</td> <td>24.104</td> <td>79.081</td>		120,000	1.055	3.456	011	- *032	24.104	79.081
129, 000 -, 325 1, 065 -, 010 -, 034 25,034 27,4012 15,000 -, 031 -, 031 -, 031 -, 031 -, 031 27,4012 1, 051 -, 015 -, 010 -, 032 27,2012 140,000 -, 015 -, 010 -, 032 28,453 15,000 -, 015 -, 010 -, 032 28,453 15,000 -, 010 -, 032 28,453 15,000 -, 010 -, 032 28,453 15,000 -, 010 -, 032 28,453 15,000 -, 010 -, 032 28,453 15,000 -, 010 -, 032 28,453 15,000 -, 010 -, 031 28,617 15,000 -, 031 28,617 -, 010 -, 031 28,617 15,000 -, 031 28,735 -, 010 -, 031 28,816 -, 031 -, 031 28,816 -, 031 -, 031 28,816 -, 031 28,816 -, 031 28,816 -, 031 28,816 -, 031 28,816 -, 031 28,816 -, 031 28,816 -, 031 28,816 -, 031 28,816 -, 031 28,816 -, 031 28,8		124.000	. 688	2.256	[11]	035	25.066	82 238
132,000		129,000	. 325	1.065	010	4€0°-	26.034	85 .412
156, DDA		132,000	-, 031	- 102	010	034	27.012	88 £21
140,000 -1,051 -3,447 -,010 -,033 27,942 144,000 -1,614 -5,294 -,010 -,032 28,097 144,000 -2,151 -10,338 -,010 -,032 28,453 155,000 -3,151 -10,338 -,010 -,032 28,453 157,000 -4,493 -14,757 -,010 -,032 28,463 157,000 -4,493 -14,757 -,010 -,031 28,541 154,000 -4,493 -14,757 -,009 -,031 28,786 176,000 -6,319 -16,113 -,009 -,030 28,786 176,000 -6,319 -17,417 -,009 -,030 28,786 180,000 -6,413 -17,417 -,009 -,030 28,844 188,000 -6,415 -21,045 -,009 -,029 28,844 188,000 -6,415 -22,170 -,009 -,029 28,844 188,000 -6,415 -21,045 -,009 -,029 28,844 196,488 -7,163 -22,144 </td <td></td> <td>136,000</td> <td>- 453</td> <td>-1.507</td> <td>010</td> <td> D 3 4</td> <td>27.763</td> <td>91 .086</td>		136,000	- 453	-1.507	010	D 3 4	27.763	91 .086
144,000 -1,614 -5,294 -,010 -,032 28,233 148,000 -2,150 -7,054 -,010 -,032 28,233 155,000 -3,153 -10,338 -,010 -,032 28,453 157,000 -3,153 -10,338 -,010 -,031 28,453 157,000 -4,493 -14,757 -,010 -,031 28,453 158,000 -4,493 -14,757 -,009 -,031 28,681 176,000 -4,493 -14,757 -,009 -,031 28,681 176,000 -4,493 -14,757 -,009 -,031 28,681 176,000 -6,691 -18,671 -,009 -,031 28,784 180,000 -6,691 -19,880 -21,009 -,029 28,887 182,000 -6,691 -19,889 -21,009 -,029 28,886 182,000 -6,693 -21,045 -20,00 -20,29 28,886 195,000 -6,163 -22,104		1 40,060	-1.051	-3.447.	010	D33	27 2942	91 . 672
148.000 -2.150 -7.054 010 032 28.23 152.000 -2.662 -8.733 010 032 28.453 155.000 -3.613 -10.338 010 032 28.453 155.000 -4.493 -13.346 010 031 28.617 154.000 -4.493 -14.757 009 030 28.681 156.000 -4.493 -15.113 009 030 28.681 177.000 -4.91 -16.113 009 030 28.780 187.000 -6.01 -17.447 009 030 28.781 188.000 -6.05 -19.890 009 029 28.881 188.000 -6.415 -22.04 009 029 28.881 188.000 -6.415 -22.04 009 029 28.885 188.000 -6.757 -22.04 009 029 28.886 196.98 -5.88 -23.51 009		144,000	-1.614	-5.294	010	033	28 °097	92 ° 183
155,000 -2.662 -8.733 010 032 28.453 156,000 -3.151 -10.338 010 032 28.453 154,000 -4.061 013 28.453 010 031 28.453 154,000 -4.91 -13.346 010 031 28.61 28.75 156,000 -4.91 -13.346 009 030 28.78 28.78 176,000 -4.91 -16.113 009 030 28.78 28.78 180,000 -5.691 -18.671 009 029 28.81 28.86 188,000 -6.059 -19.89 009 029 28.86 28.86 196,000 -6.059 -23.217 009 029 28.86 28.89 196,000 -6.089 -23.51 009 028 28.86 28.89 196,000 -7.169 -23.51 009 029 28.88 28.89 196,000 -7.169		148.000	-2,150	-7.054	010	032	28,233	92 \$ 628
156,000 -3,151 -10,338 -,010 -,031 28,453 157,000 -,619 -11,874 -,010 -,031 28,541 164,060 -4,66 -14,757 -,009 -,031 28,681 176,000 -609 -,009 -,030 28,786 176,000 -6,009 -,030 28,780 180,000 -6,059 -19,880 -,029 28,845 188,000 -6,15 -21,045 -,009 -,029 28,846 188,000 -6,15 -21,045 -,009 -,029 28,846 196,98 -7,163 -22,170 -,009 -,029 28,846 196,98 -7,163 -23,257 -,008 -,028 28,886 196,98 -7,163 -23,444 -,008 -,028 28,893 196,98 -7,163 -23,444 -,008 -,028 28,893 206,98 -8,580 -31,444 -,008 -,027 -,444 206,98 -8,570 -31,444 -,008 -,027 -,486 206		152,000	-2.662	-8.733	010	- • U 3 2	28.351	93 «015
151, 000 010 011 29.541 164, 000 003 28.617 168, 000 003 28.617 176, 000 003 003 176, 000 003 003 180, 000 003 003 180, 000 003 023 180, 000 029 029 180, 000 029 029 180, 000 089 029 180, 000 089 029 180, 000 089 029 180, 000 089 029 180, 000 089 029 180, 000 089 029 180, 000 089 029 180, 000 089 029 180, 000 089 029 180, 000 089 089 180, 000 089 089 180, 000 089 089 180, 000 089 089 180, 000 089 089 180, 000 089		156 • ពព	-3,151	-10.338	010	032	28,453	93,350
164,000 -4,06 -13,346 003 28.617 168,000 -4,49 -14,757 009 030 28.681 172,000 -4,49 -16,113 009 030 28.786 172,000 -5,309 -17,417 009 023 28.816 180,000 -6,059 -19,890 029 28.816 182,000 -6,15 -22,104 029 28.816 192,000 -6,15 -22,170 029 28.886 196,000 -6,25 -22,170 009 029 28.886 196,000 -6,169 -23,257 009 029 28.886 196,000 -7,169 -21,44 008 029 28.889 196,000 -7,169 -21,44 008 029 28.889 196,000 -7,169 -21,44 008 029 28.889 196,000 -7,169 -21,48 009 029 28.889 200,00		157, 000	-3.619	-11.874	010	031	78 .541	93 .640
168,000 -,010 -,010 28,681 172,000 -,010 -,010 28,735 172,000 -,010 -,010 28,735 180,000 -,61 -,010 -,010 28,780 180,000 -,61 -,010 -,010 28,845 188,000 -,61 -,010 -,02 28,845 188,000 -,61 -,010 -,02 28,845 186,000 -,61 -,22,170 -,010 -,02 28,845 186,000 -,61 -,23,257 -,010 -,02 28,887 196,98 -,23,51 -,010 -,02 28,891 196,98 -,23,51 -,010 -,02 28,891 196,98 -,23,51 -,010 -,02 28,891 200,000 -,23,51 -,010 -,02 28,893 200,000 -,23,41 -,104 -,02 -,02 -,444 200,000 -,25 -,144 -,144 -,144		164.000	-4°, NE. A	-13,346	60U°-	031	28.617.	93 888
172,000 -0.030 28.735 176,000 -5.891 -17.417 -0.009 -0.030 28.780 180,000 -6.059 -19.880 -0.029 28.845 188,000 -6.415 -21.005 -0.029 28.867 196,000 -6.415 -21.005 -0.028 28.867 196,000 -6.757 -22.00 -0.28 28.881 196,000 -7.163 -23.257 -0.08 -0.28 28.893 196,988 -9.580 -23.519 -0.28 28.893 200,000 -7.163 -23.519 -0.28 28.893 196,988 -9.580 -31.444 -0.28 -0.28 -0.28 206,988 -9.580 -31.444 -0.08 -0.27 -449 206,988 -9.570 -31.444 -0.07 -0.02 -0.27 206,988 -8.682 -28.485 -0.00 -0.27 13.570 206,988 -6.279 -20.660 -0.00 -0.027 13.99 215,001 -6.32 -20.654 -0.00 -0.0		168.000	-4.493	- 1.4 . 757	- °009	-*010	~ 28 «681	94 *0.98
176,000 -5,309 -17,417 -,009 -,030 28,780 180,000 -6,691 -18,671 -,009 -,029 28,881 188,000 -6,415 -22,170 -,009 -,028 28,882 196,000 -7,089 -23,257 -,008 -,028 28,886 196,988 -9,580 -23,519 -,008 -,028 28,893 196,988 -9,580 -31,444 -,008 -,028 28,893 206,988 -9,580 -31,444 -,008 -,028 -,448 206,988 -9,574 -31,444 -,008 -,027 -,444 206,988 -9,574 -31,444 -,008 -,027 -,448 206,988 -9,574 -31,449 -,008 -,027 -,448 206,988 -8,682 -22,608 -,008 -,027 -,448 206,988 -8,682 -28,485 -,008 -,027 13,570 206,988 -8,682 -22,660 -,008 -,027 13,593 216,001 -6,235 -20,600		172,000	-4,911	-16,113	60U* -	030	28.,735	94 . 275
180,000 -6,691 -18,671 -,009 -,029 28,845 188,000 -6,15 -21,045 -,009 28,845 198,000 -6,75 -22,170 -,009 28,867 196,000 -7,08 -23,257 -,008 -,028 28,893 196,98 -7,169 -23,257 -,008 -,028 28,893 196,98 -3,584 -31,444 -,028 -8,893 200,000 -9,584 -31,444 -,028 -8,893 200,000 -9,584 -31,444 -,028 -,444 200,000 -9,584 -31,444 -,008 -,027 -,444 200,000 -9,584 -31,444 -,008 -,027 -,444 206,98 -8,584 -31,412 -,008 -,027 -,444 206,98 -8,68 -8,68 -,027 -,48 206,98 -8,68 -22,570 -,008 -,027 -,48 206,98 -8,68 -22,66 -,008 -,027 -,48 206,98 -8,29 -20,60 <td></td> <td>176, 000</td> <td>-5.309</td> <td>-17,417</td> <td>- *D09</td> <td>- "030</td> <td>28.780</td> <td>34 °4 2 2</td>		176, 000	-5.309	-17,417	- *D09	- "030	28.780	34 °4 2 2
188,000 -6.059 -19.880 009 28.845 188,000 -6.415 -21.045 009 28.867 192,000 -6.157 -22.170 009 28.867 196,000 -7.089 -23.257 008 028 28.893 196,988 -7.163 -23.519 008 028 28.893 196,988 -9.580 -31.444 008 027 444 200,000 -9.580 -31.442 008 027 486 206,988 -8.86 -31.442 008 027 486 206,988 -8.82 -28.485 007 027 13.570 206,988 -6.279 -20.670 008 027 13.570 206,988 -6.279 -20.650 008 027 13.59 216,000 -6.279 -20.654 008 027 13.59 216,000 -6.278 -20.660 002 13.398 22,100 -002 -002 13.398		180,000	-5,691	18.671	600*	029	28.816	94.541
188.000 -6.415 -21.045 009 28.867 192.001 -6.757 -22.170 009 28.867 196.000 -7.169 -23.519 008 28.8891 196.988 -7.163 -23.519 008 028 28.8891 196.988 -9.580 -31.440 008 027 428 200.000 -9.580 -31.442 027 448 200.000 -9.574 -31.412 008 027 448 206.98 -8.682 -28.485 008 027 448 206.98 -8.682 -28.485 007 027 13.570 208.000 -6.279 -20.670 008 027 13.570 216.001 -6.279 -20.654 008 027 13.598 226.007 -21.510 008 027 13.398 220.007 008 026 14.32 026 220.008 027 027 13.398 220.007 028 14.32 029 <		184,000	- E * D 5 9	-19.880	600*-	079	28 . 845	94 °6 35
192,000 -6.757 -22.170 008 28.882 196,000 -7.08 -23.257 008 028 28.8891 196,000 -7.08 -23.257 008 028 28.8891 196,98 -9.584 -31.444 008 028 28.8891 200,000 -9.584 -31.444 008 027 444 200,000 -9.584 -31.444 007 027 444 206,98 -9.574 -31.412 008 027 482 206,98 -9.574 -31.399 008 027 482 206,98 -8.68 -8.68 -2.8.445 008 027 13.570 208,000 -6.27 -20.670 008 027 13.570 208,000 -6.29 -20.670 008 027 13.59 21,001 -6.29 -21.101 008 026 14.39 22,101 -20.07 -0.06 002 14.39		188.000	-6.415	-21.045	- "009	029	28.867	94°106
196,000 -23,257 008 028 28,891 196,988 -7,163 -23,519 008 028 28,893 196,988 -9,580 -31,440 008 027 444 204,000 -9,570 -31,442 007 444 206,988 -9,570 -31,430 007 486 206,988 -6,270 -28,485 008 027 -482 206,988 -6,279 -20,670 008 027 13,570 208,000 -6,279 -20,670 008 027 13,570 208,000 -6,235 -20,650 008 027 13,590 216,001 -6,432 -21,101 008 027 14,399 226,007 -21,507 -20,007 005 14,399 226,007 -21,007 007 14,399		192,000	- E . 157	- 22 - 170	- °D09	-°058	28 * 882	94 .757
196,988 -7,163 -23,519 008 028 28,893 196,988 -9,584 -31,444 008 027 444 200,000 -9,584 -31,412 008 027 444 204,000 -9,574 -31,412 007 027 446 206,988 -9,570 -31,399 008 027 15,920 206,988 -6,279 -20,670 008 027 13,570 208,485 -6,279 -20,670 008 027 13,570 208,485 -6,279 -20,650 008 027 13,570 208,485 -6,279 -20,650 008 027 13,570 208,485 -6,279 -20,650 008 027 13,570 208,485 -6,279 -20,650 008 027 13,590 21,500 -6,37 -21,101 008 026 14,399 22,200 -22,101 007 002 14,399 22,24 -21,21 007 002 14,399		196.000	- 7.089	-23,257	800°-	-,028	28.891	94 , 788
196.988 -9.584 -31.444008028428448 200,000 -9.580 -31.430008027444 200,000 -9.574 -31.412008027444027 206.988 -8.570 -31.345008027 15.920 206.988 -6.279 -20.600027 15.920 208.000 -6.279 -20.600027 13.570 208.000 -6.255 -20.650008027 13.570 215.000 -6.256 -21.510008027 13.998 224.000 -6.278 -21.510008027 13.998028 14.398		195,988	-7,159	-23,519	- *008	-*028	28 83	34 ° 1 92
200,000 -9.580 -31,430008027444 206,000 -9.574 -31,412008027448 206,988 -9.570 -11,399008027 15,920 206,988 -6.279 -20.670008027 13,570 208,000 -6.295 -20.670008027 13,570 216,000 -6.295 -21,101008027 13,898 224,000 -6.278 -21,101008 14,398	RATION	195.988	1 9 5 5 5 th	-31.444	800*	028	428	-1 . 404
206,988 -9,574 -31,412 -,008 -,027 -,466 206,988 -8,682 -28,485 -,008 -,027 -,482 206,988 -6,279 -20,640 -,008 -,027 15,920 206,988 -6,279 -20,650 -,008 -,027 13,570 208,000 -6,295 -20,654 -,008 -,027 13,617 216,001 -6,432 -21,101 -,008 -,026 14,399 224,000 -6,376 -21,582 -,008 -,026 14,399 22,000 -6,376 -21,517 -,007 14,817		200° 000	-9.580	-31 .430	- "008	027	ង្ ង ង* –	-1 .458
206,988 -9,570 -31,399 -,008 -,027 -,482 206,988 -8,682 -28,485 -,008 -,027 15,920 206,988 -6,279 -20,670 -,008 -,027 13,570 208,000 -6,255 -20,650 -,008 -,027 13,670 216,001 -6,232 -21,101 -,008 -,026 13,998 224,000 -6,378 -21,582 -,009 -,026 14,398 22,000 -21,582 -,007 14,398 -,024 14,398		204.000	-9.574	-31,412	8 JU	027	-,466	-1 .529
206.988		206.988	-9.570	- 31 , 399	008	-°027	- 0482	-1 .582
206,988 -6,239 -20,610 -008 -027 13,570 208,000 -6,295 -20,654 -008 -027 13,617 216,001 -6,432 -21,101 -008 -002 14,398 224,000 -6,378 -21,582 -009 -002 14,817	TENI TION	206.988	-8.E82	-28,485	008	027	15 2 20	52,232
208.000 -6.295 -20.654,008027 13.617 216.001 -6.432 -21.101008026 13.998 224.000 -6.578 -21.582009025 14.398	MIN-H	206, 998	-E.279	- 20 . 6110	008	027	13,570	44 .521
-6.432 -21.101008026 13.998 -6.578 -21.582008025 14.398 -6.336 -22.101007026 14.817		208.000	-6,295	-20,654	- D08.	027	13.617.	44.675
-6.578 -22.101008025 14.398.		216, 000	-6.432	-21.101	008	920*-	13.998	45,926
		224 • 000	-6.578	-21,582	- "008	- 025	14 . 398	47,236
		232, 000	766.0			•		

Table C-3. Trajectory Tables for the Mission with an Inclination of 28.5° and a Cargo of 29,483.504 kg (65,000 lbs)

				10.00 m			
	MARIANA PARA MARIANA M		APOLLO 13 ACCELERATION COMPONENTS	CELERATION	OMPONENTS		i
	TIME	rodax	01	YBBO	10	ZDDOT	01
	SEC	M/SEC##2	FI/SEC**2	M/SEC**2	F1/SEC**2	M/SEC**2	FT/SEC**2
	248.000	-7.090	-23.261	700	023	15.722	51.581
	256,000	-7.288	-23,910	- "007	022	16.211	53 .187
	264 .000	-7.501	-24.609	- "006	021	1F.729	54.885
	272,000	-7.730	-254362	900*-	020	17,277	56 .683
	280.000	-7,978	-26.175	900"-	020	17.859	58,592
	288,000	-9.246	-27.053	006	019	18.478	60.623
	296.000	-8.535	-28.003	006	038	19.138	62,790
	304, 000	-8.849	-29.032	005	017	19.844	65.107
	312.000	-9.189	-30.148	005	017	20 • F 02	67.592
	320,000	-9.559	-31,361	- "005	016	21 .417	70 256
	328.000	-9,961	-32,682	005	015	22,297	73,153
	335,000	-10.401	-34 -125	- *DO4	015	23,251	76 .2 82
	344.000	-10.883	-35,706	+00*-	014	24.288	79,685
***************************************	352,000	-11.413	-37.443	004	013	25.422	83 .404
	360,000	-11,997	-39.360	+0U*-	012	999*32	87.487
	368,000	-12,592	-41,313	- °004	012	27.566	90 a4 39
	376.000	-13.092	-42,952	003	011	27.423	89.972
	394,000	-13,590	-44.586_	-,003	010	27.269	89 * 466
	392.000	- 14.086	-46,215	003	- 000	27 . 103	88,921
	400,000	-14.580	-47,836	- "003	-,003	26 • 925	88 . 338
INJECTION	401.026	- 14,644	-48.043	003	600*-	26.902	88,260
	401.026	14.544	-48.743	003	PU0"-	26.902	88.250

Table C-3. Trajectory Tables for the Mission with an Inclination of 28.5° and a Cargo of 29,483.504 kg (65,000 lbs)

(pa)		RANGE ANGLE .12310087+02 DEG	FLIGHT74379917-05 PATH ANGLE	FLIGHT .92471228+02 AZIMUTH	LONG 68450572+02		EC**2		PERIGEE64707432 407 M RADIUS	
(concluded) I = 28,5°	SHUTTLE	≥12055435÷07.M	.64707619+07 M	.85089383+02 DEG	.27206665+02 0E6	.50966433+11 M**2/SEC	61163339+08 M**2/SEC**2		.65633128+07.M	
	ROBOT SOXIOO HCR SHUTTLE	RANGE	RADIUS	DES.	GCL AT	ij	80	V1	APOGEE RADIUS	0.00
		SEC	MISE	DEG	DEG	DEG	LBS	PARAMETERS		
	eren (fallen en eren e	IIME40102639+03 SEC	.78764192+34 M/SEC	. 2 A 5 CO CO CO + O 2	.27353434+O2	,9832297+02 DEG	*33349335+D6 LBS		ECNIRICY . 71021427-02	24 00-1100
		IIME	INERTIAL VELOCITY	TNCL	501.AT	INERTIAL AZIMUTH	TH0I3W	KEPLERIAN ORBITAL	CNIRICY	0

Trajectory Tables for the Mission with an Inclination of 90° and a Cargo of $18,143.694~\mathrm{kg}$ ($40,000~\mathrm{lbs}$) Table C-4.

MDC/HCR I=90.0 FUEL 3DE4K+524K (4DK PAYLOAD)

We will be a second or the second of the sec	E E	INERTIAL	VEL OCITY	RELATIVE	VELOCITY	GAMMAS	GAMMA R
And the second s	- 2 E C	MICEC	FIZSEC	MISEC	F1/SFC		DE G
1 IF 7 - OF F	000°	381,874	1252.867	טעם.	000.	000	610°-
	, noo	381 .874	1252 867	000	000.		-*079
	4 . 000	382,271	1254.171	17.473	57,326	2.620	89.82N
	8, noo	383.536	8	35.759	117.319	5.350	89.818
BEGIN 111.1	8 . 000	383,536	er:	35,759	117.319	5,350	89.00
- And the second of the second	12,000	385.716	1765.471	54.856	1.80 ann 8	8.177	8 9±4 35
	16 • 000	388,914	1275 . 965	74.824	245 487	11.086	87.992
	20,000	393,249	1794.183	95.598	313,969	14.054	86 .297
END TILI	20.000	393,249	1290.188	95.698	313.969	14.054	86 .2 97
	24,000	398+853	1308,574	117,569	3185 4724	17.064	84 .568
	28.000	41)5.849	1331.524	140.549	461.120	2 EU . D8 5	82 . 57E
	32,000	414.365	. 3359.464	164.711	540 . 390	23.072	ď
	36 . 000	424.529	1392.811	190.116	F23.742	25.973	77.940
	40,000	436.446	1431.910	216.790	711.252	28.725	75 . 365
	44.000	450,136	1476.824	244.617	802.550	31.248	72 .663
	18, 000	4.65.459	1527.098	273.276	896.576	33 4 50	69.861
	52 . 000	482,081	1581,630	302 , 234	991 .583	35.240	LC:
	55,000	499.844	1639,909	331.367	1087.162	36.584	54 a 032
	60.000	519,265	1703.624	361,554	1186.201	37.532	61.037
TO KKS	. F.2, 707.	531 .670	1744.323	380.089	1247.010	7.93	59.299
	64.000	541.429	1776,343	394 . 324	1793.713	38.155	œ
O MAXT MUM	81x 108	564-920	1853.412	427.525	1402.642	38.442	55 .238
	68.000	566,903	1859,918	430.268	1411.639	8 . 45	LG i
	72, 000	596-157	1 955.89E	459.8D4	1541 . 351	38.426	52 .060
Je KKA.	73.680	F (1) 9 , F 8 9	262,0005	487.583	1599,682	38.321	50.837
	76, 000	629.673	2065.857	513.348	1684 .212	38 .089	49.172
	80.000	667,874	2191,188	5F1 , 241	1841,342	37.468	46 .376
	84,000	71.0 a 974	2332.590	613.591	2013 an 93	36 = 596	43.693
	98.000	758,955	2490.111	670.276	2199.068	35.516	-
	92, 0.10	911-811	2.663.471	731 .239	2399.078	34 "2 76	38 .700
	96 • 000	869,502	2852 697	196 - 424	2612.941	32.924	36.399
	100,000	931 - 964	3057 4625	865-774	2840 • 466	11 • 502	34 .227
	104.000	999,105	3277,905	939,218	3081.423	30.046	32 . 183
The second secon	- 184, 000	1070 - 175	3513+041	1016.634	3335 . 413	28 ° 28 85	30 -261
				ì			

o	-	:								-														J												:
n of 90°		GAMM & R	0£6	:	28.455	26 4759 ··	25,168	23 .674	22 . 27 3	10 100	1001	10,000	16445		34 548	13.675	12.848-	12.062	11,316	10.606	9.931	9 289	7 / D. 8	7.539	7.250	7.250	7 . 006	6.477	5 . 946	5 .975	5 * 925	5-925	5 .600	096.4	4 . 36 7	3 8 8 8
clinatio)		CAMMA S		:	27.139	25 . 725	24.354	23.034	21 - 768		10 215	17 275	16-285	35.343	844.45	13 45 96	12.78A	12.012	11,276	10.575	9.907	9.270	8 ° 6 6 3	7.531	7.244	7 . 244	7 .001	6.471	5.941	5.920	5 ° 920	5.920	5 .597		4.356	3 * 8 3 8
with an Inc (40,000 lbs)	AD)	VELOCITY	F1/SEC		3602.316	3882 . 155	4174.963	4% 8 D . 7 7 1	922.6624	31.72 other	14/4 000	013°C10	51 cc = 302	5867,763	7221 .505	7577 .183	7934.701 -	8293.970	8654,904	9017.424	9381 453	9746.920	10113.757	0851 288	1050.851	1050.851	1043.847	11029.503	1016,318	11115.829	11015.829	11015.828	11193 2555	1572.693	1966 * 327	2374 .687
the Mission w 143.694 kg (4 1	K (40K PAYLO	RELATIVE V			1097.986	1183.281	1272.529	1365.739	1462,957	#554 • 75#	1656.561	1775.E35	18/3"550	7093,294	22n1 . 115	23119,525	2418.497	2528.002	2638.015	27484511	2859 467		3082.673)		_	_	3366.165 1	_	4		_					3771,805 1
Trajectory Tables for the Mission with an Inclination and a Cargo of 18,143.694 kg (40,000 lbs)	MOCZHCR I=90.0 FUEL 3R64K+524K (4RK PAYLOAD)	VELCCITY	F TV SEC	•	3762.775	4026.982	4305.552	4598.382	4905.494	5725 9999	0004400	בממ"מאגנו	6734 *96U	6927 853	7270,521	7620.830	7973.424	8378.160	8684.911	9043.557	99.03.991	9766.113	10129.830	16951.713	111159.876	11059.876	111052,766	11038,192	11024.781	11024 2283	11024.283	11024.283	11200.340	11576.999	11 157 .947	12373 , 709
ijectory T and a Ca	C/HCR I=90.	INFRITAL V			1146.894	1227.424	1312.332	1403.587	1495.195	1593, 189	1 2 2 4 5 0 1 5	1756.364	1988 416	7110 - 025 ·	2216,055	2322.429	2430,300	2538.423	2547,161	2756.476	28FE.337	2976.711	3087,572				3368.983	3360.44]	33,60 - 353	3360,201	3360.201	3360,201	3413.864	3528,669	3547.838	3771,5117
	œ Σ	1 IMF	SFC		112,000	116.000	120, 000	124.000	128,000	132,000	155, 1111	140.000	144,000	152,000	156,000	157,000	164.000	168, 000	172.000	176, naa	180.000	194,000	188,600	196,000	198, 156	198,156	200,000	204.000	2018, 000	2118.15F	204, 156	200 + 15F	212, 000	220.000	224, 000	236*000
Table G-4.																										SEPAPATION					ORR IGNITION	BEGIN MINTH				

Table C-4. Trajectory Tables for the Mission with an Inclination of 90° and a Cargo of 18,143.694 kg (40,000 lbs)

MDC/HCR 1=90.0 FUEL 3064K+524K (40K PAYLOAD) (Continued)

	335 SEC	INERTIAL M/SEC	VEL OCITY FT.ASEC	RELATIVE M/SEC	VELOCITY FI/SEC	GAMMA S DEG	GAMMA R. DEG
			A Prince of the Control of the Contr	The state of the s		:	
	244.000	3899,881	12794.886	3900.945	12798,375	3,312	3.311
A PARTY OF THE PAR	252, 600	4033.160	13232,154	4034 .964	13238 . U70	2 *846	2 * 8 4 5
	260.000	4171,576	13686.273	4174.005	13594.536	2.420	2.418
	258,000	-4315 .389-	14158-101	4318*599	14168.633	2 -031	5.029
	276.00n	4464.893	14648,599	4468.773	14661.327	1.677	1 .676
	28 4, 000	462Ba439	15158,856	4624 4946	151-73-787	1 4 3 5 9	1 . 358
	292.000	4782,339	15690.087	4787.492	15706.994	1.074	1.073
	300,000	-4951 all 73-	16243.676	4956 832	16262 . 571	. 822	.821
	308.000	5127,094	16821.176	5133.440	16841,995	.601	.601
	316,000	5310 . 943	17424-355	5317.857	17447 * 038	-412	.411
	324.000	5503,232	18055.224	5510.696	18079.712	*252	.251
	332,000	5704 .6 62	19716.093	-5712 -659	18742-319-	*121	.12.1
	340.000	5916.038	19409.574	5924,551	19437.503	.019	.019
	348,000	-6138 * 283-	20138-744	6147.303	20168.316	0.54	- ° 1154
	356,000	6370,934	20962.014	6380.430	20933 . 171	- • 102	101
	354,000	6505-261	21670.804	6615-210	21703.443	- • 1 3U	130
	372.000	6839,811	22440.324	6850.181	22474.348	- 0.143	143
	380,000	7074 543	23210.444	7085 - 30 A	232#5-162	139	-*138
	388.000	7309,416	23981,0023	7320.551	24017.555	1.18	118
	396, 000	7544 3 390	24751 -93E ·	7555.870	24789+60N	081	-*080
	404.000	7779,423	25523.04T	7791 .228	25561,772	027	027
NOT LOW	407, 331	7876 " 4B3	75841 - 218	7888 - 337	25880 - 370	900°	0000
; }	407.301	7876.403	25841,218	7888.337	25880,370	000°	00u*
			The second secon				

Table C-4. Trajectory Tables for the Mission with an Inclination of 90° and a Cargo of 18,143.694 kg (40,000 lbs)

(Continued)

MDC/HCR 1=90.0 FUEL 3054K+524K (4NK PAYLOAD)

...

	TIME	SVVW	WFIGHT	THRUST	15	LONGIL	LONGIT. ACCELERATION
	SFC	×6×	1.85	Z	LRS	M/(SEC)S0	FT/(SEC)50
TET-08E	0.03	2087442*2	4502022-3	29358262 *II	6.598999.9	14.04	46.05
	. ren	2087442.2	4602022,3	29358262 0	6.599999.9	14.04	46.05
	4,000	2057436.9	4535871.9	29359732 5	6602578.6	14.27	46 .81
	9.000	2027431,6	4469721.6	29405111.0	6610532.0	14.47	8 4 2 4 8
BFGTN TILI	9, 1100	2027431.6	4469721.6	29405111.0	6610532 • 0	14.47	47.48
	17.000	1997426.3	4483571.2	29464537.0	6623891 .4	14.68	48-15
	15,000	1967421.0	4337420.9	29547885 .0	6642628 . 8	14.99	48 85
	20,000	1037415.7	4271270.6	29654333.5	96665°9°4	15,11	49 28
END TILT	24, 090	193741537	427127ñ.E	29654333 • 5	6666559 * 4	15 • 1.1	49.58
	24.11011	191174111.4	421151211.2	29782396.2	6695349.1	15,35	50 . 35
	24.000	1877405.1	4139959.8	0.05005995	6728538.4	15.60	51 . 17
	37. [1][1]	1847309.9	41172819.5	30094390.5	6765488.2	15.84	51 " o 1 -
	36, 000	1917394 . 6	4006669.2	30272091 • 5	6805436 .9	16.08	52.74
	46.000	1,787389.3	3940518.8	30459229.2	6847507.2	16.27	53 . 39
	ម្នង ពាការ	1757384 . U	3874369 2	30651556 *7	6890744 .1	16.43	53.90
	40.5111	1727378.7	3808218.2	30844669.0	6934157.5	16.38	53,74
	52, 1100	1597373.4	4742067.8	31034040.5	6976729.9	16 425	53,31
	56.000	1567358.1	3675917.5	31215534 .5	7017531 .4	16.07	52 ° 73 · ·
	53 . 000	1637362.8	35u9767 al	3138571307	705573942	16.36	53,67
JO KNO.	62,307	1620056.4	3571613.0	31477834.2	7076498.7	16.63	54 . 56
,	54° DOH	1607757.0	3543515.9	31542339 40	7.090999.9	16.84	55 , 25
MINTX M D	E7.718	1579544.3	34822992	3167414902	7120632 .1	17 .35	56 . 93
	84, HAH	1577352 42	3477466.5	31683931 *2	7122831 •1	17.40	57 "08
	72.000	1547347.6	3411316.1	31808421.2	7150817.6	18.04	59 .20
IN KMS.	73.6811	1534744.2	3343531.7	31855775.7	7161373 .4	18.34	60.18
	76.0mi	1=17341,7	3345165,8	31914889.2	7174752.6	18,78	61.60
	3.1, 0.00	1487336.4	3279015.5	32110 30 49 .7	7194592.9	19.57	64,21
	34. AITE	1457331.1	3212865.1	32073355°7	7210377 22	20.34	66 . 73
	a 8 ូ ហ្កាក	1427325.8	3146714.7	32127581.5	7222567.7	21 °U9	69.19
	92.000	13073711.5	3 (18115) E 4 . 4	32169141.7	7231910.8	71.83	71.63
	a5, 000	1367315.2	3014414.1	32200697 47	72319004 49	22 * 22	74 403
	Ten. Pee	17373119.9	7948263.7	32224487 .5	7244353 .0	23,30	176 . 43
	104, 11011	1307304.6	2892113.4	32242347 •5	7248358*1	24 401	78 476
	168.601	1277299.4	78159E3.1	32255748.2	7251380.7	24.71	81.07

_	
Inclination	lbs)
g	
WIED	(40,00
MISSion	694 kg
cne	143,
Irajectory lables for the Mission With an inclination	and a Cargo of 18,143.694 kg (40,000 lbs)
able C-4.	

) IIIO)	(continued)			
	:	MDC/HCR I=90.0 FUEL		3064K+524K (40K PAYLOAD)	YLGAD)		
	14: M	N A N	WEIGHT	THRUST	. 121	LONGIT, ACCELERATION	CCELERATIO
	· SEC	KGS	587	z	£ BS	M/(SEC)SQ	FT/(SEC)50
	112,000	1.4057451	7.218917.7	22265703.2	7253618.7	25.4	83 4 2
	116, 000	1217288.8	7633662 4	32273064 90	7255773 • 4	26 • 16	00
	120,000	1187283.5	2617512.0	37278495.7	7256494 .4	26.90	20.00
**	124,000	1157778.2	2551361.7	32282497.7	7257394.2	27.66	90 • 7 5
	128,000	1127272.9	7485211.3	37285446,5	7258057.2	58°45	63 . 34
	132,000.	10972E8.2	2419062.3	3229762240	7258546.2	29.27	96 • 🛚 4
	136.000	1067548.0	2353540.5	31541557.2	7090824 "2	29.42	96.52
	140, 000	1038646.6	228383.7	30666314 .7	6894136.7	29.42	96 .52
	144.000	1010545.6	2227871 °E	29820287.5	6703867.4	24.05	96. 5
to the first code delicate	148, 000	983219.2	2167627.2	2-15900062	6519605.8	29.42	96 - 52
	152,000	956643.5	2169037.8	28205438.7	F.74(1834 .9	29.42	96 * 52
	.156,000	930795-1	2052054 *0	27433665.2	6167333 .3	29.42	96 - 52
•	160.000	905655.1	1996627.7	7F685574 "U	59991 - 5.7	29.42	96 52
	164, 000	841199.0	1942711.2	25959641 45.	583595946	24.65	96 .52
	168.000	6.57417.9	1800260.9	25254153.2	5677359.6	29°62	96 ° 52
	172, 000	.834253.2	1839235.6	24568456.5	5523211 •0	29.42	96 452
	176 • กติก	811746.8	1789595.4	23901964.0	5 7 3 3 7 5 . 3	29.42	96 . 52
	140, 000	78.9841 -11	14413011 .4	237541147.5	5227717.9	29*42	96 52
	184.000	768528.9	1694316.3	22624143.2	5086109.7	29.42	96 .52
and the same of th	188, 000	147794.11	1648603.5	22011695 40	6 9 4.8 4 5 2 8 6	29.42	96 -52
	192.000	727620.2	1604127.9	71416168.5	4814546.2	79°62	96 .52
	195, 000	707992 . 1	15611855.3	20837048.2	4684354 °8	29 - 62	96 *52
	198.15F	697635.2	1538022.3	20531581.2	4615683.1	29.42	96.52
SF Panal 100	194, 156.	37045801	815742-4	U*	U°	פחיי	00°
	200.000	37fi4F8.1	816742.4	٣.	a.	00.	00°
	204, 000	370468.1	81574.7 .4	÷	U•	00.	00°
	208.000	370468.1	816742 4	c,	0.	ນູນ.	00°
The second secon	208,156	370468.1	916742.4	Ģ	c,	00°	•00
ORB TENITION	2018-156	370468.1	816747.4	6389085,3	1436323.5	17,25	56 . 78
8661 N MIN-H	204, 15F.	370458.1	816742.4	561353141	1251972 40	15.15	49.71
	212.000	365564.6	306147.0	5613531.1	1261.972.0	15.35	50.37
v veneral company of	220, 000	355658.6	784115.0	5613531 •1	1761972 40	15 .78	51 . 78
	228.000	345672.6	762077.6	5813531.1	12F197Z . D	16.24	53.28
	236, 044	13567646	740040.7	5813531 • 1	1261972 411	16.72	54 *37

Table C-4. Trajectory Tables for the Mission with an Inclination of 90° and a Cargo of 18,143.694 kg (40,000 lbs)

Continued)

MDC/HCR I=90.0 FUEL 3064K+524K (40K PAYLOAD)

	± <u>T</u> ∞ E	SVV	. WEIGHT	THRUST	15	LONGIT. A	LONGIT. ACCELERATION
	ت <u>د ا</u> ر	k G s	. 1.95	Z.	Las	M/(SEC)S0	FT/(SEC)SQ
	วิที่นี้ เกิน	325680.6	718002.8	5613531.1	1261972.0	17.24	មេ
	252,000	3 1 5 6 8 4 . 6	F05965 #	5613531.3	1261972.0	17.78	5.8 3.4s
	25 J. HBH	305648.6	67392k 0	5613531.1	1261972 • 0	18.36	60 .25
	268.00m	295692.6	651890.6	5613531.1	1261972.0	8 8 8 8	62,28
	276,000	295696.6	529853.2	5613531 .1	1261972 • N	19.65	64 a 46
	2 84 s MMB	27571111.6	EB7815.8	5613531.1	12£1972 • ft	20336	
	292, 000	3.407.935	585778°4	5613531 .1	1261972 • 0	71.13	59.31
	Thu. uff	2557118.6	563741.0	5613531.1	1261972.0	21.95	72.02
	308, 000	245712.6	541733.6	5613531 *1	1261972 .0	22 45	74 .95
	316.000	235716.F	519666.2	5613531.1	1261972.0	23.81	78.13
	324,01311	2257211 . F	4 97528 a.B	5613531 .1	1261972 • 0	74 . 87	81,59
	332,000	215724.6	475591.4	5613531.1	1261972.0	26.62	- 85 e3.7
	347,000	2.15778.6	453553 . 9	5613531 41		27.29	89.52
	348.000	105732.6	431516.5	5613531.1	1261972 . D	28 . 68	60° h6
	355. DAU	185801.6	4119522 .4	5466273 07	1228857 -2	24.66	96 .52
	364.000	176318.4	388715.5	5187278.6	1166146.6	20.62	96 - 52
	372, 000	167319.2	368875.7	4922528	1196627 .2	29.42	96 • 52
	380.000	158779.3	350048.5	4671280.2	1050145.6	24.65	25.96
	393, 1100	150675.3	332192 .3	4432860.7	995546.7	29.42	96 .52
	3 96 , DOU	142995.11	315227.9	4206E1U.1	945683.6	29.42	96 .52
	ម្រាម ព្រា	135687.1	299139.8	19. 70.01.06.5	997416 .4	29.42	96 • 52
INJECTION	407.301	137725.7	202742 au	3.8433065	878227.1	29.42	96 ,52
	417,301	132785.7	292742 04	3946543 6	878227 01	29°42	96.52

of 30°

TIME TIME HALTTINE HALT				MUCZACH IISU.U FUEL SUE48+5244 (4118 PRICUEU			
FF ODD 25 4 67712704.87 20912913.0 34 25 461.29 49 209136.2 34 25 461.2							
FF	A. A. A. A	E E	ALTI	TUDE	បូជម	SNI	TUCF
## COURT	THE CONTRACT	SEC.			¥	ја. Ш.	0 F G
### ### ### ### ### ### ### ### ### ##	IFT-OFF	000	- 25	œ.	6371204.87	20962943.0	34.719
112.4 6771239,44 20903016.2 111.1 8.000 140.56 461.2 6771239,49 20903365.0 111.1 8.000 140.56 461.2 6771345.69 20903365.0 12.000 140.56 12.000 140.56 12.000 140.56 12.000 140.56 12.0000 12.000 12.000 12.000 12.000 12.0000 12.0000 12.0000 12.0000 12.000		- 000	- 425	ec I	6371204 87	20902903*0	34 .719
140.56		4.000	34.25	112.4	239.4	20903016 . 2	34.719
12.000		8,1100	140 56	461.2	6371345 469	20903365.0	34 - 719
16,000 580,50 1904,e 6371725,69 20904808,5 20,000 920,75 3020,8 6372126,94 20905924,7 24,000 1345,37 4414,0 6373063,71 20907318,2 24,000 1345,87 6195,2 6373063,71 20907318,2 24,000 1345,87 6195,2 6373063,71 20907318,2 40,000 3947,89 8073,5 6373063,71 20907318,2 40,000 3947,87 12951,5 6373063,71 20907318,2 40,000 4833,44 1585,7 6376191,00 20913764,5 52,000 681,5 22577,3 6376191,00 20913764,5 52,000 681,5 22577,3 6378191,5 52,000 8033,44 1585,7 6378191,5 60,000 9259,37 30378,5 638172,4 64,000 10558,67 33918,5 638174,6 64,000 10558,67 33914,4 638304,44 2094893,7 73,000 1492,7 33917,4 638304,4 2094893,7 73,000 16471,67 64040,8 639289,4 209489,6 80,000 2440,4 7008,8 639289,4 209489,4 96,000 2440,4 7008,8 639289,4 209494,4 96,000 23492,7 7008,8 639289,4 209499,2 104,000 23492,7 7006,8 35988,9 104,000 23492,7 640668,7 209689,7 104,000 23492,7 640668,7 2099294,0 104,000 23492,7 640668,7 2099294,0 104,000 23492,3 6405,6 2099294,7 104,000 23492,3 640668,7 2099294,0 104,000 23492,3 640668,7 2099294,2 104,000 23492,3 2009096,2 6409668,7 2099294,2 104,000 23492,3 2009096,2 2099294,2 104,000 23492,3 2009096,2 2099294,2 104,000 23492,3 209909,2 2099096,2 2099096,2 104,000 23492,3 2099096,2 2099096,2 2099096,2 104,000 23492,3 209909,2 2099096,2 2099096,2 104,000 23492,3 2099096,2		12 000	121 50	1054-8	6331676	2,843,50,505	34.6719
79, 000 920,75 3020,8 6372125,94 20905924,7 20,000 920,75 3120,8 637255,94 20905924,7 24,600 195,2 637365,8 1 20907318,2 24,600 195,8 10.95,2 637365,8 1 20907318,2 28,000 315,8 1 1035,2 2 637365,8 1 20907318,2 637365,8 1 20907318,2 637365,8 1 20907318,2 637365,8 1 20907318,2 637365,8 1 20907318,2 637365,8 1 20907318,2 637365,8 1 20907318,2 637365,8 1 20907318,2 637365,8 1 20907318,2 637365,8 1 20907318,2 637365,8 1 20907318,2 637365,8 1 20907318,2 637365,8 1 20907318,2 637365,8 1 20907318,2 637365,8 1 20907318,2 637365,8 1 20907318,2 637365,8 1 20907318,2 637361,8 1 20907318,2 6374,8 1 20907318,2 6374,8 1 20907318,2 6374,8 1 20907318,2 6374,8 1 20907318,2 6374,8 1 20907318,2 6374,8 1 20907318,2 6374,8 1 20907318,2 6374,8 1 20907318,2 6374,8 1 20907318,2 6374,8 1 20907318,3 1		16.000	580.50	1904	6371785.69	209048082	34.721
TILT 20,000 920,70,75 3020,88 6172175,94 20905924,7 24,000 1345,37 4414,0 6175510,69 20905924,7 28,000 1467,81 6095,2 637366,57 20909000,0 38,000 3156,87 10357,2 637466,50 20913264,5 40,000 314,60 12951,5 6374363,0 20910974,5 44,000 483,44 16857,2 6374363,0 20910976,5 44,000 4833,44 16857,7 6374363,0 20913764,5 44,000 681,5 22577,3 6378191,50 20913764,5 55,000 681,5 22577,3 6378191,50 20913760,5 56,000 681,5 22577,3 6378191,50 2092849,0 56,000 681,2 31078,4 310784,4 310,2 56,000 681,2 31078,4 310,2 310,4 56,000 681,2 310,4 310,2 310,4 66,000 3258,6 310,4 310,4 310,4 <td></td> <td>20,000</td> <td>920 . 75</td> <td>3020.8</td> <td>6372125 94</td> <td>20905924 • 7</td> <td>34 07 347</td>		20,000	920 . 75	3020.8	6372125 94	20905924 • 7	34 07 347
24,000 1345,37 4414,0 61755n,69 20907318,2 28,000 246,00 246,00 3156,81 6095,2 637366,56 20910979,5 32,000 3156,87 10357,2 637436,56 20910979,5 40,000 3156,87 10357,2 637516,33 2091876,5 40,000 4833,44 15857,7 6376191,50 2091986,5 52,000 681,56 22577,3 6378191,50 2091986,5 52,000 681,56 2257,3 6378191,50 2092879,0 60,000 9259,37 30378,6 6378191,50 20933310,2 64,000 9259,37 30378,6 637814,30 20933310,2 64,000 9259,37 30378,6 6381744,5 20947,80 64,000 9259,37 30378,6 6381744,5 209428,91 64,000 9259,37 30378,6 638174,6 209478,7 64,000 19550,00 39441,4 63814,9 20948,8 7,708 11827,37 3880,0		20,000	92N.75	30208	F 7 7 2 1 7 5 . 9 4 .	20905924 .7	34.736
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40,000 3156.81 10357.2 6574365.0 20913764.3 40,000 483.44 49 12951.5 6375154.3 20913769.5 40,000 483.44 49 19071.3 677601.00 20913769.5 52,000 6881.5 22577.3 6378091.50 20921986.5 52,000 6881.5 22577.3 6378091.50 2092379.0 60,000 9259.37 32808.5 6378174.50 20923310.2 60,000 9259.37 37803.6 6381274.6 20923310.2 60,000 9259.37 37800.6 6381274.6 20923310.2 60,000 9259.37 3800.6 6381274.6 20923310.2 60,000 9259.37 3800.6 6381210.6 2094174.5 60,000 10558.6 34640.4 6381174.6 310417.0 60,000 1936.6 43800.6 6381174.8 310417.0 73,600 1988.6 43800.6 638117.8 310418.8 73,600 1988.6 43800.6		32,000	7.460 -81	8073.5	6373666.56	2091097945	34.933
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### 1917 3 6 7711 1 1 1 1 1 1 1 1		43, 000	7341027	15,431 43	6 476 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	20918366147	761.35
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56,000 9259,37 26354,2 6379244,37 20929279,2 60,000 9259,37 30378,6 6381215,00 2093310,2 62,307 1000,00 34641,2 6381215,00 20933780,2 64,000 1958,67 34641,2 6381744,6 20937580,7 88,000 1950,00 43873,6 6384594,94 20941751,7 80,000 13322,6 43873,6 6384594,94 2094683,7 15,000 1937,2,6 43873,6 6384594,94 2094683,7 15,000 1486,6 45932,0 6384594,94 2094683,7 16,000 14886,6 48940,8 6384594,94 2094683,7 16,000 14886,6 48940,8 6384517,3 2094683,7 16,000 18126,9 4040,0 638452,3 209524,6 100,000 25403,8 6394,8 209968,8 6394,4 100,000 25403,8 77076,0 639468,8 70946,0 100,000 25403,8 3345,8 6490668,7 2099968,		52.000	E881,5E	72577.3	63781191.50	7. 79 25 20 2	38,344
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62,307 10000,06 32309,5 6381215,00 20335744,5 64,00 10558,67 34641,2 6381774,69 20937580,7 38903,7 6381774,69 20937580,7 38903,7 6383046,000 2094751,7 58,000 119370,00 43873,6 6384594,94 2094683,7 73,680 14000,06 43873,6 6384594,94 2094683,7 20948896,7 75,000 14885,69 49840,8 6384594,94 2094683,7 20948896,7 6380,00 14885,69 494 20947,94 6389362,7 20957028,5 64040,0 18126,97 6389794,4 6389362,7 20957028,5 6400,0 23492,7 77776,0 6394748,87 20992924,0 104,000 27369,3 83345,3 639668,37 20999569,7 20999569		60.000	9259,37	30378.5	6380473.00	20933310.2	41.890
### ### ### ### ### ### ### ### ### ##	13 KMS.	62. 307	10000 . 06	32308.5	6381215.00	20935744 5	43.190
MAXY MUM		64.000	10558,62	34641.2	6381774°E9	20937580.7	44.201
EAR DOOD 1930 40.4 6393148.81 2094208.0 4684504.8 KM C. 73.680 1400.4 6384594.84 20946833.7 49946.33.7 KM C. 73.680 14000.8 43840.8 51048896.7 50948896.7 RM C. 75.000 14886.6 48840.8 638512.8 20948896.7 50948896.7 RM C. 76.000 16471.6 64040.8 6787702.7 20952406.0 58 RM C. 18126.9 759471.4 6389362.7 20962476.0 58 RM C. 18126.9 770998.8 6397888.9 20957404.0 67 RM C. 2460.4 70998.8 6395888.9 2097404.7 66 100.000 25403.8 89794.3 6796688.3 20999569.0 70 104.000 29384.3 96405.2 6400668.7 20999569.7 72	Q MAXI MUM	67, 708	11827.37	38803.7	6383046 «UI)	20941751.7	46 4528
KMX. 72,000 43873.5 6384594.94 20946833.7 49 KMX. 73.680 43873.6 6384594.94 20946833.7 49 KMX. 73.680 14000.06 638512.83 20951813.5 50 RD.000 1486.69 49840.8 638517.23 20951813.5 55 RD.000 18126.97 59471.4 6389362.75 20952476.0 63 RB.000 19850.67 63971.34 6397883.94 20968151.0 61 SC.000 23492.75 77076.0 6396688.8 6396688.8 7094444.7 68 100.000 25403.8 183345.8 6396688.75 2099954.0 70 104.000 29384.31 96405.2 640668.75 20999569.7 72		68.000	11930,00	39141.4	6393148,81	20942089 .0	46,829
KM < 73.6 R n 14000,06 45932.0 678527.81 20948896.7 50 75.000 14885.E9 48840.8 5386112.81 20951813.5 52 80.000 16471.62 5404040.8 6389362.75 209570813.5 58 80.000 18126.97 549714.4 6389362.75 2095245.0 61 95.000 21540.44 71076.0 6397883.94 20968151.0 61 96.000 23492.75 77076.0 6394748.87 2097444.7 68 104.000 23403.81 83345.8 639668.37 209924.0 70 104.000 23492.75 7076.0 6400668.75 2099954.0 70	PROPERTY OF A THE PROPERTY AND RESIDENCE AND PROPERTY OF PERSONS ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT A	72, 000	1.3372.69	43873.6	6384594 494	20346833.7	49.695
1486.69 48840.8 5385112.81 20951813.5 52 16471.62 54040.8 638362.75 2095278.5 55 18126.97 6391092.44 20968151.0 61 23492.75 7776.0 6397883.94 20974045.0 64 23492.75 7776.0 6397883.94 20974045.0 64 25492.75 7776.0 63978643.7 7098644.7 68 25492.31 89794.7 6398643.25 70992924.0 70		73.68N	14000,06	45932°D	6385223.81	20948896.7	50°947
16471,62 54040,9 6787702,71 20957028,5 55 18126,97 59471,4 6389362,75 20962475,0 58 19851,62 55 55 55 55 55 55 55 55 55 55 55 55 55		.76, 000	14885-69	48840.8	5386112 -81	2095181345	52 0703
18126.97 59471.4 6389362.75 20962476.0 58 19850.62 E5126.7 6391092.44 20968151.0 61 23492.75 70998.8 639288.87 2098044.7 68 25403.81 83345.8 639684.87 209804.0 78 29389.31 89794.3 639683.2 2099264.0 72		80.000	16471,62	គ្នា ប្រភព្វ ខ	6787707.41	20957028 \$5	55.753
19850.62 F5126.7 6391092.44 20968151.0 61 23.5400.44. 70998.8 6392883.94 20974045.0 F4 25402.75 77076.0 6394748.67 2098294.0 70 27369.31 89794.2 6400668.75 20999569.0 70		9 4 . 000	18126.97	59471°4	6389362 • 75	20962475 .0	58 ° 747
23492,75 77076,U 6394948,87 20974045,U 64 23492,75 77076,U 6394748,87 20980147,U 66 25403,81 83795,8 639668,37 2099924,0 78 27369,31 89794,7 6798643,25 2099924,0 70		88.000	19850.62	F5176.7	6391092.44	20968151.0	61,601;
23492,75 77076,U 6394748.87 20980147,U 66 25403.81 .83345,8 6396668.37 2098444.7 68 27369.31 89794.7 6398643.25 209994.0 70 29384.31 96405.2 6400668.75 20999769.2 72		92,000	21540-44	7.3998.8	6392883 -94	20974045 •0	F4 .263
25403.81 .83345.8 6396668.37 2098444.7 68 27369.31 89794.7 6398643.25 209994.0 70 29384.31 96405.2 6400668.75 2099976942 72		000 • 96	23492,75	77076 "U	6394748.87	20980147.0	66.7NE
27369,31 89794,7 6798643,25 70992924,0 70 29384,31 96405,2 6400668,75 2099976947 72		100, 000	25403.81	83345*8	6396668 #37	20986444.7	226 83
29384.31 96405.2 6400668.75 20999 ⁴⁶ 9.2 72		104 • 000	27369.31	F # 46768	6398643.25	0.42626605	70.916
		138, 000	29384 . 31	96405.2	6400568 *75	2*69±66602	72.700

Trajectory Tables for the Mission with an Inclination of 90° and a Cargo of $18,143.694~\mathrm{kg}$ ($40,000~\mathrm{lbs}$) Table C-4.

(Continued)

511 511 151 154	TIME	ALTI	ALTITUDE FT	RAD	RADIUS FT	INCL
116 173 174	12,000	71 2 4 4 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	103163.5	6402740.19	21006365.2	74 .2941
124	116,000	43503.97	111052.1	E404857,44	21013295 2	75,7163
124	000.021	35678.37	117055.0	6407000.62	21020343.0	76.9869
	24.000	37843.00	124156.8	6409180.19	21027494.0	78 - 1238
621	29,000	40033.00	131341 49	6411386 .37	21034732.0	79.1435
132	32.000	42243.87	138595.4	E413F14.75	21042043 *0.	80.0608
135	35. nni	44471.06	145902.4	6415360.75	21049411.7	80 • 3 8 0 6
1 ម [មក. ពុរាជ	46707.31	153239.2	6418117.12	21056814.5	.81.6038
144	11 H 0 0 11	48944.5E	160579.3	6420375 487	21064225.2	82 .2454
149	48.000	51175.37	167898.2	6422629.56	21071619.2	82.8178
152	52, non	53 192 62	1751727	6424871 •(16	21078973.2	83 43312
356	56.000	55590,06	182387.1	00.4607543	21086266*2	83 , 7939
150	50, nnn	57761.50	1 9950F *2	6429292 037	21093478°7	84 .2127
164	F4 . lithfi	509111.25	196576 "4	6431460.37	21100591 .7	84 . 5934
α •••	5 a . UOU	850mm • 08	203425.4	c433592 *94	21107588.2	34 .9408
172	72.000	64065,37	210188.2	6435685.19	21114452 \$5	85.2589
176	76, 000	5£080.37	216799.1	64 377 37 456	21121169.7	85 .5512
14C	40° 600	6 84)45.12	223245.2	6439731.00	2112772F 2	85.8207
194	94.000	80042°83	229513.8	5441676.75	21134110 0	86 ane 91
88	88.000	719119,97	235593.4	64435E6 219	21140308.7	86.3005
261	92, 636	73501.25	241473.9	6445396 25	21146313.0	8F .515U
196	96,000	15329.94	247145.5	6447163,94	21152112.5	86.7149
	C. C	76734.19	250112.2	6448[89.8]	21155150°2	86.8170
ALL MOLIGIAN	2	21.25.71	2 * / I 'I ! ! C 2	100000000000000000000000000000000000000	2*nc1cc112	77 70 000
20.7	20 J. DOG	75.98F.25	2575/9.6	114 ° [] 38 8 h h 9	2115/6/8•/	36.81/1
204	204 , 604	78525,50	257629.6	6450440.06	21162861.0	86.8170
2019	2019, 0.16	19939.25	262257.9	6451894 400	21167631 • 0	86 48171
2118	7f18.156	79991.75	262440.1	6451948.12	21167808.7	86.8171
z	204,156	79991 .75	262440.1	6451948 - 12	21167808.7	86 *8171
	208 15F	79991.75	26244001	6451948.12	21167808.7	86,8171
212	212, 000	81750.94	266597.6	6453754-19	21172093.7	86.9074
220	220.000	93727.44	274696.3	6455865.50	21180464.0	87,0903
0.00 8.00	72 8, NON	95977.62	282062 .4	6458135.94	21138110.0	87 .2569

.06 J

		MDC/HCR 1=90.D FUEL				
				3064K+524K (40K PAYLOAD)	(0	
	TA TE	40	7 T T T T T T T T T T T T T T T T T T T	C 8 8	20103	INCL
		E.	H-H	X	<u>+</u>	DEG
	244,000	89814.56	294667	6462156.12	21201299.5	87.6024
	252, 000-	91423.31	2-346662	6463857.94	21206882.7	87-7618
	260.000	92832 sti	304568.6	6465362.94	21211820 5	87,9162
The second secon	26 4, 000	94049*44	30,4361.41	5455713 244 F4F7812 25	21219856.2	88.2105
	200 462	95937.87	314756-3	6468772 -62	21223007.2	88-3510
	292.000	96626.87	317017.3	6469568.83	21225619 *2	88.4874
	300, 000	97158.50	313761 .5	6470210.69	2122772542	88 .6198
	308.000	97543.62	320025.0	6470709.12	21229360.5	88 . 1485
The second secon	31 5, 000	97.194 "05	320846.7	6471075494	21230564 • П	88 .8736
	324.000	97922,50	321268.0	6471324.00	21231377.7	88.9954
	332,000	97943-31	321335 03	6471467-62	21231849.0	89.11.40
	348 000	97725.25	320620.9	6471505*19	21231972.2	89 • 3427
	356,000	97522 44	319955,5	6471435437	21231743.2	89.4522
	35 4 000	97279 81	319159.5	6471329 onn	21231394.2	89.5546
	372.000	97010.69	318276.5	6471199.31	21230968.7	89.6498
The second secon	34 0, 000	95730-37	347356.9	6471051-31	21230516.0.	89 47 386
	388,000	96455,37	316454.6	6470931,25	21230089.2	89.8214
	.396, 000	96203 475	315629+1	6470827 •06	2122974745	89 8 989
	404.000	95995,37	314945.5	6470768.25	21229554.5	89.9720
INSECTION	407,301	95927.08	314721.1	6470752 -12	21229534.2	90 0000

Table C-4. Trajectory Tables for the Mission with an Inclination of 90° and a Cargo of 18,143.694 kg (40,000 lbs)

			:				
			ō)	(Continued)			
	Σ	M DC/HCR I=90.0		FUEL 3064 K+524K (40K	NK PAYLOAD)	•	
						The same of same of	
	T I M	MACH	g . N A	PRESSURE	ALFP	DRAG	. (5
	ZEC			LB/(FT)50	DEG	z	F.8.5
:							
LIFT-OFF	, מממ	_ 0000.	.000	000	- 92 .013	56479 958	12697 4199
		. 0000	.000	000"	-92.013	56479,958	12697 .1-99
	4° 000	• ភូភព។	180.121	3.762	000.	16901 • 184	3799,537
	8.000	.1033	747.287	15.607	.001	64990.043	15859.960
BEGIN TILT	9,000	.1033	747.287	15.607	.001	66990 "043	15059,960
	12,000	. 1588	1730.733	36 . 147	10 8	147537,916	33167-842-
	16,000	.2172	3143,133	65 . 646	1 8 100 100 100 100 100 100 100 100 100	253393 *996	56955 4235
	วม • มมก	. 2789	4979.730	104,004	273	377139.047	84784 223
END TILI	20, 000	.2789	4979,730	104 •004	271	377139 4047	84784 • 229
	24.000	2442	7215.891	150,707	000°	509184.887	1144692333
	29° 000	.4136	9907 # 284	204 . 879	000*	647832 4977	1 45638 4643
	32.000	. 487F	12681.845	264,866	. 000	831614.914	186954-465
	36, 000	.5667	15744.987	378 . 841	.000	1055584-359	237304.799
	4 D • DOO	,6514	18880.672	394 . 331	. 000	1371175,062	308252 4 10
	ម្នេក ប្រាប្	.7422	21941,299	458.754	.000	1779737 4047	400100.793
	48.000	, 839Ü	24741,311	516.773	.000	2550553.875	573387,385
	52° ngo	.9412	27069.208	565 . 352	000°	3451209 656	775862 -773
	56. OHE	1,0494	28805 843	601,623	000.	4417068.687	625° 26° 253
	5 1. naa	1.1672	30011.926	626.812	ano.	4601674 6587	1034497 .602
*V E X = C	62,307	1.2417	30522.479	637,475	. 000	4538401.625	1020273,250
:	54, NOU	1.2998	30804 \$ 325	643,362	ຸດດູ	4474112 -000	1005820 • 367
O W AXTMIJM	67.708	1.4386	71101 .029	64 9 55 5	000.	4264405.500	9586/6,469
	. 8 nda	1 . 4 4 9 4	31099.042	649.517	.000	4243199 4477	943909.356
	72.000	1,6134	30661 6660	548 6449	0110	5887655° 486	8/39/53/6/
14 X 47.	73, 690	1.5858	30231.137	531 390	000.	3704544 0094	8 52 75 9 "55 4
	76 • DD()	1,7879	29387,356	613,758	000.	3424352,625	769825 -078
	នគ. ពាពល	1,9662	27279 877	569°748	000.	2892720 412/5	650309*336
	84 . (101)	2,1346	24367,665	508,929	. 000	2431216 625	546559 2227
	94, 000	2.31174	21484.476	448.713	00U*	2025559 4016	455363 .770
	42 . [.[1]	5.49DE	188116 . 311	392,778	.000	1663643.016	374001-820
	96, 000	2.5861	16366.474	341.821	000.	1346153 0141	302627.258
	186.066	7.8957	14173,967	296,029	. nr.	1071427,687	240866.520
	104, 000	3,1198	12216.905	255.153	.000	859106 *289	1 92 90 9 4 96 3
	108.000	3,3486	10432,269	217,881	000°	E92279.750	155530.676

Table C-4. Trajectory Tables for the Mission with an Inclination of 90° and a Cargo of $18,143.694~\mathrm{kg}$ ($40,000~\mathrm{lbs}$)

(Continued)

		MDCZECR I=9n.B FUEL		3N64K+524K (4NK PAYLOAD)	K PAYLCAD)		
man mys. crypta may							
	11.46	T V v S	9 . NYO.	PRESSURE	ALFP	0 8 8 Q	
	SEC			LB/(FT)5a	DEG	Z	LBS
· · · · · · · · · · · · · · · · · · ·							
	112.000	3.5802	8835.233	184.529	EIU.	ES1429.516 ·	1239FF .284
	115,000	3.4184	7447.518	155 .545	•ເມີນ•	434661 4459	97715.783
	120.000	4.0619	F254.775	130.634	nao.	341312,300	767 30 0058
	124,000	4.3109	5241.478	109.471	. 1100.	271106.562	60.947.178
	128.000	4 , 5665	4390.443	91.696	. 000	214264.615	49168.661
	132, 040	4.2312	3682.775	76.916	uau.	152590-080	37900.557
	136.000	5,1654	3094.663	64.633	end.	134349,139	30202.887
	140,040	5.3379	260 % 502	54 " 275	11011-	109985 - 211	24725.658
	144.1rDfi	5.6863	2196.658	45.878	. non	911088.839	211252,776
	144,000	112 hU°5	1881.534	39.298	UHU•	74392.700	16724.0144
	152.000	F.42118	1547,269	33.569	99a.	61036,292	13721.514
	156,000	15 8 1 8 ° 0	1367.789	28.567		49692 4937	11171.417
	160.000	7.2354	1159.278	24.212	· filli	41247.022	9272 902
	164, 006	7.67112	978.483	ጋ fi a u ፕ u	.000	34812.266	7825-109
	168.000	9,1715	827.241	17,173	GHJ.	29255.894	6576 986
	172,000	9.5878	588.142	16.372	cun.	24494 573	5504 351
	176 • 000	9.11672	F73.74F	11.923	into *	200.01012	458° 268
	183, 090	3.5543	476.785	9.958	Linit.	16964 -375	3913.743
	រ ទម្ « ព្រាព្	10,0593	395,190	8.754	, mun	14061.121	3161.066
	188, 000	10.5692	326.937	6.879	•(000	11634 .792	2615.605
	192.000	11.0871	270.381	5.647	and.	9620.360	2162,743
	195, nnn	11.6128	223.671	4.671	0 inu-	7958 0371	1789-113
	198,156	11,8993	76.2 ORE 7	4.220	- PB6	7189.670	1 F 1 F . 3 U Z
NO 1 teapo 35	198,156	11.3473	2012 - 0167	4.771	0000-	000.	ານຕູບ.
	2130.060	11,9531	179.682	3.753	ana.	. nnu:	gau.
	204, 000	12.0557	140.772	5146.6	•000	000.	ողը•
	208-000	12,1733	112.021	11 42 * 6	. ทุกกั	ู มูปน	ung.
	20%,156	12.1774	111:066	7.320		.() I'I'	1000
ORB IGNITION	2fi8 . 1FF	12.1774	111.066	2.320	THEFT.	iidu.	ບດກ•
SEGIN MIN-H	208, 15F	12,1774	111.1165	2 * 320	10,521	ייםני•	000•
	212 • DDD	, from	. man,	JIIU.	10.573	000*	eia.
	220,000	. 000m	- Difter	•000	111 - 525	000.	ກ(ເກ•
	228.1106	unuu.	ingu.	. 606	1fi . 473	9du.	min.
	236, 000	. 0.000	titie.	.000	10.340	000•	000.

Table C-4. Trajectory Tables for the Mission with an Inclination of 90° and a Cargo of 18.143.694~kg (40.000~1hs)

1bs)		DRAG N		000.				000.															
kg (40,000 lbs)	K PAYLOAD)	A L F P DEG	10.248	10.080 9.377	9.64]	9,375	10118	8.410	8.113.8	7.645	7.2311	F. 79F	6.345	5.877	5 8 3 9 5	4 . 50.9	4 . 4 7 1]	3.929	3.436	2.943	2 444	2.239	
and a Cargo of 18,143,694 kg (Continued)	43C/HCR I=90.4 FUEL 3064K+524X (40K 24YL04D)	SSURF LB/(FT)S0	ยนบ•	บอย.	999.	000°	7110·	າມເຄ	ang.	ugu.	2UU.	ildu.	HUH.	: EG:	nun.	Ē.	ann.	.t.np	. ii (ii)	, fifti	•trillin	. rsp	
Cargo of 1 (co	0.44 FUEL 30F	PYK. PRESSURF NZ(M) SO LBZ(F	000.	044.	190.	Child.		(HE).	• ជំពល	. 11711.	. 11(1)	- nnn		rair.	BIR.	980.	a timil	nnu.	indi.	ene.	4 11111	1.01	
and a)C/HCR I=91	M B C H	. 0.000	. Proje	. 0000	0000.	Bunt.	. Pilifile	. 0.000	• նրոնը	ofilia.	. mm	. 11111111	· Finns		. finist:	. Highli	. firm	. 0000	, Butil	a thirth	- m-⊓-	
	<i>5</i>	F T T T T T T T T T T T T T T T T T T T	244,890	252, PF0 250, BG0	268.MBD	275, AUG	292, 006	300.000	309,000	316.00h	324,040	332.000	340,000	348.11111	35.5 (II) II	364.Did	372, 119.0	380.000	394,000	3.06.11011	4114 nd	407,301	
																					,	INJECTION	

Trajectory Tables for the Mission with an Inclination of 90° Table C-4.

Table	C-4.	ajectory and a C	Trajectory Tables for and a Cargo of 18,	the 143.	Mission with an Inclination 694 kg (40,000 lbs)	n Inclina lbs)	rion or 9
			(Cont	(Continued)			
	Σ	ñ.ùe=1 abH\bom	FUEL	3D64K+524K (4DK	PAYLGAD)		
	TI MF	2.74	LATITUDE	LONGITUDE	CHIP	CHIY	CHIR
	SEC	DF6	n គ	DEG	DF 6	DE G	9 H C
1 TF T = 0 F F	- 50	9P. DRU	34.720	-117.883	9000	, חהח	182.099
	900	11111111111111111111111111111111111111	34.720	-117.893	000.	•000	182.099
	4.001	600.00	34.726	-117,883	. nei	N14	182,099
	8, 011	89.983	34.720	-117.883	. de1	TCU	182 • 099
REGIN TILT	8.000	89,983	34.720	-117.883	.001	000.	182.099
and the state of t	- 112, Bun	911.0811	34.720	-117.883	-1-393	•ນູນ•	182.099
	16.000	90.392	34.725	-117.893	-2.765	. nnn	182 .f. 99
	20,000	960.40	34.712	-117.883	-4-143.	.000	182.099
END 111.1	20.000	911, 975	34.719	-117.883	34[-4-	. 000	182,099
	24,000	91.668	34.719	-117.883	u⊓ថ្ន	.000	182-099
	28.000	92,725	34.719	-117,893	564°1-	000.	182.089
The second section of the second section is not a second section of the second section is not a second section in the second section in the second section is not a second section in the second section in the second section is not a second section in the second section in the second section is not a second section in the second section in the second section is not a second section in the second section in the second section is not a second section in the second section in the second section is not a second section in the second section is not a second section in the second section in the second section is not a second section in the second section in the second section is not a section in the section in the section is not a section in the section in the section is not a section in the section in the section is not a section in the section in the section is not a section in the section in the section is not a section in the section in the section is not a section in the section in the section in the section in the section is not a section in the section in the section in the section is not a section in the section in the section in the section is not a section in the section in the section in the section is not a section in the section in the section in the section is not a section in the section in the section in the section is not a section in the section in the section in the section is not a section in the section in the section in the section	32,006	94 a 1.42	34.713	-117.893	-9.8713	.000	182.099
	36 • 000	596.36	34.717	-117.883	-12.235	000	182.099
	40,000	90.213	34.715	-117.853	-14.811	, 1000	182-099
	44.000	11:0,899	34.713	-117.884	-17.515	900.	182,059
	48, 1160	103.997	34.710	-117.894	-20-32u	.000	182.099
	52.000	107.440	34.7116	-117.884	-24.2115	. 000	182.099
Calledon	56, 406	111.159	34 .7/11	-117 *834	95[-52-	000•	187.1199
	FD. DOD	115,120	34.695	-117.8AF	-29.156	. 000	182.1199
SMX ET	62,307	117.519	34.632	-117.885	-30.898	- Ովս	187,099
	F 4 . NNN	119,325	34 689	-117.885	- 22 - 177	י בענו	192.109
MIN TX SA G	67,788	1250274	34.581	-117.886	- 34.968	070.	192.099
	F8 • FIDE	123.697	34 6811	-117.886	-34.187	. החתו	187.199
***************************************	72,000	128.139	34.671	-117.826	-38-155	១០១•	182-099
* KKYV	73.680	13 H. Fu2	34.866	-117.687	- 79,383	. ກຸຕຸນ	182,099
	76, 000	137 652	@99•4£	-117.897	-01-055	.000	182 • 1199
	90.000	136 830	34.647	-117.838	-43°067	. n nn	182,099
	94, 800	140.9111	34.632	-117 . 888	-46.561	000•	182-1190
	1911.89	144.697	34.63	-117.890	-49.138	000	182,099
	42, HOG	148.163	34.595	-117-891	-61.589	.00u	182.099
	af . non	151,299	34.574	-117.893	-53,911	י טבע.	187.009
	100,000	154.111	34.550	-117.894	-56 •106	•ជាប្រា	182 - 1199
	104.000	156,620	34.523	-117.89F	-58.177	ີ ຕິດຄຸ	182.099
	104, 000	159.851	34.493	-117.390	-EII +128	10 De	182-099

Trajectory Tables for the Mission with an Inclination of 90° and a Cargo of 18,143.694 kg (40,000 lbs) Table C-4.

(Continued)

MOCZHOR I=90.0 FUEL 3064K+524K (40K PAYLOAD)

1 <u>1</u> 1%) * C		2011000 DEG	DEG	0 7 6	056
112,000	160.034	34 . u.s.	-117.900	-61.957	000.	182.099
116.000	165.531	34.424	-117.9117	163.609	າມບ.	2
121, 800	164 "167	34.394	-117.985	-65.320	.000	182.099
124.1111	165,547	34.341	-117.907	- ﴿ وَ * 8 وَ مَا	.000	182,699
124,000	1664872	36.2.65	-117.910	-69.311	.000	182.099
132,1111	167.948	30.245	-117.913	- F9 . E7E	000.	182.099
136,000	183°083	74.191	-117.917	-70.963	00 u•	182.099
1911.11111	160.941	34.133	-117.9211	-72,1811	nuo.	182,099
144,000	170.525	34 -1171	-117.924	-73.333	.000	182.039
148,000	171.326	34.015	-117.528	-74.47c	.000	182,099
152, 000	171.954	33.335	-117.933	-75.472	.000	182.099
156,11140	172.4211	33.861	-117,937	- 7F . 46E	. 000	182.099
150,000	173.032	33.783	-117,942	-77.415	.000	182.099
JE4. DIN	173.697	73.7411	-117.907	-78.37E	. נוחוו	182.099
158, 000	173.921	33.615	-117.952	-79,196	00U*	182.099
172.1191.	174,310	33.525	-117.952	- 80.042	000.	182.099
175, 000	170.667	33.473	-117.964	-81) *85c	פטט•	182,099
196, DIH	170.09F	33 - 333	-117.976	-81.FH7	000.	182 . [199
144,000	175.3111	33.231	-117,976	-82,351	000*	182,099
188.000	175.581	37.125	236.711-	-83.0F9	. 000	182.099
192, 1100	175.943	33.015	-117.930	-83.761	000.	182,099
196,0148	17F. L.R.E	32 . 9116.	-117.907	- 84 431	. nnn	182.099
193.156	176.211	220.62	-113.001	-Au.782	.00d	182.099
198.156	176,211	32 837	-118.1111	- 84.782		182,099
200,000	176.213	32.182	-119 .1919	- 85 • 880	000.	182.039
204 • BEE	17E.218	32.664	-118.112	- 05.72R	. 000	182.099
วกห. กกุน	176.223	32 .545	-118.119	-86 .37.7	,000	182 • 099
211A.15F	176.724	32.541	-119,4110	- 8F.4617	ຕຸມປູ *	182,099
204,156	176.224	32.541	-118-019	-86.402	00U•	182 *1199
208+15F	176.724	32 . 541	-118.019	- 75,934	ີ ທູກກ	182.099
212,000	175.335	364.62	-119.075	-76.362	•ມຕູ	182.1199
220-1006	176.562	32.181	-118.042	-77.259	oud.	182.099
228, 000	175.779	31.927	-119+058	-78-154	.000	182.099
236.000	176,989	31.665	-118.075	- 79 . fif E	. 000	50

Trajectory Tables for the Mission with an Inclination of 90° Table C-4.

Tap	table c-4.	and a Cargo of 18,143.694 kg (40,000 lbs)	argo of	Cargo of 18,143,694 kg (40,000 lbs)	kg (40,00	0 1bs)	
	4		(Continued)	(penu			
		MDC/HCR.1=90.0 FUEL 3064K+524K (40K PAYLOAD)	0 FUEL 3064	X+524K (40K	PAYLOADI		
				(
	3414	AZ .	LATITUDE	LONGITUDE	CHIP	CHIY	CHIR
	- 2EC	- 0E6	- 930	DEG	.08.6	DE G	DEG
	244.000	177,191	31,394	-118.092	- 79.978	. 000	182 .099
	-252, 080	177-385	31 . 113	-118-110	-80 *894	000.	182.099
	260.000	177,573	30,823	-118,128	-81.815	. 000°	182.099
	25.8 000	177 - 754	30 . 523	-118:147	-82.741	.000	182.099
	276.000	177,929	311,212	-118,167	-84,671	, ana	182 .099
	294,000	178,099	- 59.891	-118,189	-84 4565	•000	182 * 099
	292,000	178,761	29.558	-118.209	185.545	. 000	182,099
	393, 999	178.419	29.213	-118.231	-86 • 489	°000°	182 099
	308.000		28 . 856	-118.254	-87.437	• رين	1 º 2 º 0 9 9
	-316,000	3 7-8 * 7:1 8	28.487	-118.277	-88.389	•000	182.099
	324.000		28.104	-118.301	-89.345	.000	182,099
	-335vB00	\$66° 8'	27 . 707	-118.327	- 90 , 304.	.000	182.099
	340, 000	179.133	27.296	-118.352	-91.268	•000	182.099
	348-000	.179,263	26.869	-118.379	- 92 . 234	000°	182 °D 39
	355, 000	179,388	36,476	-118.407	-93.204	000.	182.099
The same of the sa	364 . DMP	179,505	25.967	-118.435	-94 .177	000.	182 .099
	372, 000	179,612	25.490	-118.465	- 95 • 1 52	000.	182 4099
	3.00.000	179,712	24 .998	-118.495	- 46 . 130	000*	182 .099.
	388, 000	179.804	24.488	-118.576	-97 0111	•000	182 .099
The second secon	3 96 • 1000	179.889	23.962	-118,558	- 98,093	000.	182,099
	404.000	179.970	23.419	-118.590	-99 °077	000.	182 • 099
INSECTION	407,301	180,000	23.191	- 118 "En4	- 99°484	םטם.	182 °U 99
	407, 301	180.000	23-191	-118.604	ղեն» 66 –	000*	182 • 099

Table C-4. Trajectory Tables for the Mission with an Inclination of 90°

Table C.4, ... Trajectory Tables 180 time Mission with an Inclination of 90° IMP. LONG. -117.987 -118.000 -118.014 -118.045 -118.062 -118.098 -118.117 -118.136 -118,215 -118,235 -118,255 -118.317 -118.338 -118.359 -118.38D -118.175 -118 392 -118 392 -118 392 -118.392 -118 .3 92 -118 405 -118.297 -118.080 -118.392 -118-452 IMP. LAT. 31.815 31.540 31.259 30.969 32.801 32.577 32.337 32.083 29.123 28.799 28.472 28.141 27.806 27.468 27.127 29.757 33,208 33,012 30.058 26.739 26.304 6.941 6.941 30.373 26.941 26.941 26 .943 25.855 26.941 26.94 MOCARE REGEP ESTRANTEST 69th KBN (400 000 10s) TOTAL ALPHA DEG 12,248 12,204 12,089 11,942 11.01.11.09. RANGE ANG. 28.935 32.957 37.348 42.124 47.331 58.914 65.372 72.268 79.605 87.386 154-381.-165-755 177-582 189-863 202,598 209,649 209-649-215-738 242,649 242-649-113,403 122,972 132.990 143.460 52.892 34.283 95.612 128.940 242-136 282.715 RANGE 112,000 116,000 120,000 124,000 144.000 144.000 148.000 152.000 180,000 184,000 188,000 192, 000 196,000 164.000 175,000 208.156 709.156 208-156-212,000 204 - 900 32-000 136,000 60,000 98, 156 98.15F 200,000 208, 000 SEC TIME ORS IGNITION BEGIN MIN-H NOIX VOY 35

Table C-4. Trajectory Tables for the Mission with an Inclination of 90° and a Cargo of 18,143.694 kg (40,000 lbs)

(Continued)

140 14 A W LU 3 W L 3 C S + N L 3 C S - 1 T L 3 C S + N L 3 C S +

RANGE RANGE ANG. TOTAL ALPHA IMP. LAT. TMP. LONG. KM DEG DEG DEG DEG 371.34F 3.394 11.55u 24.903 -118.553 473.97F 3.677 11.057 24.397 -118.553 473.97F 4.577 11.057 23.311 -118.558 473.97F 4.577 11.057 23.311 -118.558 571.377 4.577 11.057 23.311 -118.558 571.377 4.577 118.623 -118.623 -118.623 571.991 4.567 10.444 22.105 -118.639 571.91 4.567 10.444 22.105 -118.639 571.92 9.743 21.444 -118.739 -118.739 571.92 9.743 21.444 -218.639 -118.739 571.01 9.749 22.105 -118.639 571.444 22.105 -118.63 -118.83 571.444 22.105 -118.63 -118.83	MDCZHCR IP90.0	MDC/HCR I=90.0 FUEL 30f4K+524K (40K PAYLOAD)	K (4NK PAYLOAD)		
7.394 11.554 24.903 7.394 11.554 24.397 7.960 10.760 23.867 4.567 10.760 22.331 4.567 10.444 22.7331 6.660 8.786 9.743 2.736 6.615 8.959 19.2137 6.663 8.959 19.2137 6.663 8.103 19.2137 7.468 7.187 19.673 7.468 7.187 19.637 7.468 7.187 19.637 7.893 6.727 15.970 9.793 5.746 10.977 9.759 6.759 19.273 11.266 3.346 -9.634 11.561 3.312 -54.223	RANGE			IMP. LAT.	TMP. LONG.
3,394 11,554 24,393 3,472 11,317 24,393 4,258 10,760 23,311 4,258 10,444 22,725 10,444 22,725 10,466 22,105 10,972 2,755 2,711 14,632 10,759 10,977 10,97	X Z	OEG	DFG	DEG	0E G ::
3.677 11.317 24.397 7.960 11.052 23.867 4.559 10.444 22.3311 4.267 10.444 22.3311 6.261 9.743 21.444 5.217 9.360 19.073 6.615 8.959 19.073 6.615 8.959 19.013 7.468 7.187 19.013 7.468 7.187 19.632 7.468 7.187 10.653 6.279 6.271 10.977 6.267 6.271 10.977 6.267 6.271 10.977 6.267 6.346 10.977 11.266 3.346 -9.634 11.261 3.312 -54.223	378.346	3,394	11.554	24 .903	-118,523
7.960 11.052 23.867 4.259 10.740 23.313 4.567 10.444 22.725 4.444 22.725 4.444 22.725 4.223 11.444 22.725 4.223 11.561 4.675 23.415 2.725 23.416 22.4	401,596	3.672	11.317	24.397	-118.555
4.559 10.750 23.311 4.567 10.444 22.725 4.246 10.165 22.105 5.217 9.743 21.444 5.217 9.743 21.444 6.261 9.350 19.973 6.663 8.959 19.137 7.468 7.187 19.217 7.493 6.771 14.632 6.759 6.775 6.776 10.761 8.977 11.561 3.312 -54.223	433.92F	7.960	11.052	23.867	-118.588
4.567 10.444 22.725 4.866 9.743 22.4165 5.217 9.350 20.414 5.561 9.350 20.736 6.663 8.959 19.137 7.468 7.187 19.217 7.468 7.187 19.217 7.393 6.771 14.632 9.793 6.771 14.632 11.232 3.479 -54.223 11.561 7.312 -54.223	467.377.	4.259	10.760	23,311	-118.623
9.246 10.105 22.105 6.217 9.743 21.444 6.260 9.743 20.736 6.282 8.959 19.972 6.282 8.539 19.217 7.059 7.187 19.217 7.059 7.187 19.217 7.355 6.227 14.632 6.267 6.227 14.632 9.793 6.271 8.079 9.793 6.271 8.079 10.266 4.903 6.127 10.276 3.903 -54.223 11.561 3.312 -54.223 11.561 3.312 -54.223	501,996	4.5.67	10.444	22.725	-118.660
5.217 5.714 6.560 5.350 5.350 5.344 6.362 6.352 7.453 7.463 7.187 7.393 6.227 7.187 7.393 6.277 7.393 7.468 7.187 7.393 7.468 7.187 7.393 7.468 7.187 7.393 7.468 7.187 7.393 7.468 7.187 7.393 7.468 7.487 7.187 7.393 7.468 7.479 7.393 7.479 7.307 7.307 7.312 7.307	537.811	36 c c	10.185	22~105	-118 639
6.615 9.350 20.736 6.615 8.959 19.972 6.663 8.103 19.213 7.059 7.187 17.185 7.468 7.187 14.632 0.335 6.727 15.937 0.345 5.746 10.970 9.759 4.903 5.127 10.266 4.903 6.127 11.266 3.479 -54.223 11.561 3.312 -54.223 11.561 3.312 -54.223	574.887	5.217	5.743	73 .444	-118.739
5,0415 8,059 19,072 6,282 8,539 19,137 6,663 8,103 19,217 7,0159 7,187 15,097 7,393 6,277 10,977 8,793 6,277 10,977 8,793 5,716 10,977 8,793 6,127 10,977 9,759 4,983 6,127 10,266 0,346 0,067 11,267 3,479 -54,223 11,561 3,312 -54,223	513.27U	ក្នុងស	0 * 3£0	20.736	-118.783
6.282 8.539 19.137 7.663 8.103 19.217 7.663 7.187 15.996 7.83 6.271 10.977 8.79 6.271 10.977 8.79 6.271 8.479 9.75 4.98 6.127 10.26 4.98 6.127 10.26 4.98 6.127 11.26 3.479 -54.223 11.56 3.312 -54.223 11.56 3.312 -54.223	653.1116	un o o	φ. φ. φ.	19.972	-118.829
6.663 8.103 19.217 7.059 7.852 17.185 7.468 7.187 15.369 7.355 6.227 10.977 8.793 5.746 10.977 8.759 4.803 8.479 9.759 4.803 6.127 10.266 4.346 -9.634 11.267 3.479 -54.223 11.561 3.312 -54.223 11.561 3.312 -54.223	594.182	C . 2 82	8,539	19.137	-118.880
7.059 7.652 17.185 - 7.468 7.187 15.996 7.339 6.727 12.970 8.793 6.727 12.970 8.793 6.746 10.977 9.759 0.846 11.266 0.346 -9.634 11.561 3.312 -54.223	726.834	F. F. E. S	8.103	19.217	-118.936
7,468 7,187 15,996 7,393 6,711 14,632 14,632 6,797 12,970 17,977 17,977 17,977 18,079 18,079 18,079 11,791 3,412 -54,223 11,561 7,332 3,312 -54,223	791.1141	7 .059	7 4552	17.185 -	-118.998
7.393 F.711 14.632 0.375 F.727 12.970 9.767 5.271 8.073 11.266 10.346 .0.346 11.332 3.412 -54.223 11.561 7.332 3.412 -54.223	876.878	7.468	7.187	15.096	-119.068
6,335, 6,227 12,970 8,793 5,746 14,977 6,759 4,943 8,079 9,759 4,943 6,127 11,266 0,346 ,062 11,332 3,479 -54,223 11,561 3,312 -54,223	474.427	7 . 9 93	£ .711	14.632	-119.150
8,793 5,746 10,977 c,267 5,271 8,479 6,127 6,127 6,127 6,127 10,266 u,346 0,624 11,332 3,479 -54,223 11,561 3,312 -54,223	177.560	0.335	F.727	12.970	-119.248
6,759 6,711 8,479 9,759 4,9813 5,127 11,266 4,316 4,634 11,332 3,479 -54,223 11,561 3,312 -54,223	974 . 975	9.793	5.746	10.977	-119.365
9.759 4.9ft3 5.127 111.266 6.346 -9.634 111.332 3.479 -54.223 11.661 3.312 -54.223	11:28,1126	19600	5.71	6 L n ° 8	-119,512
10,266 0,346 ,067 10,791 3,903 -9,634 11,332 3,479 -54,223 11,561 3,312 -54,223	1082,932	9.759	4 . 9813	5.127	-119.789
10,791 3,903 -9,634 11,332 3,479 -54,223 11,561 3,312 -54,223 11,561 7,312 -54,223	1129.693	111,766	945.4	-062	-120.006
11,332 3,479 -54,223 11,561 3,312 -54,223 11,561 7,312 -54,223	1198.311	16.191	3.903	-9.634	-120.576
11.561 3.312 -54.223 11.561 3.312 -54.223	1758,785	11,332	3.479	-54 .223	-123.200
11,561 3,312 -54,223	1284.277	11.561	3.312	-54.223	-123.200
	1254.277	11.561	3.312	-54.223	-123.260

Table C-4. Trajectory Tables for the Mission with an Inclination of 90°

		and a Cargo	Cargo of 18,143.694 kg (Continued)	4 kg (40,000 lbs)	0 lbs)	
		4 DC/HCR_I390.0_F	4DC/HCR_1=90.D_FUEL_3069K+524K_(40K PAYLOAD	OK PAYLOAD)		
			AND MADE IN THE PARTY OF THE PA		-	ť
	1 2 L	AERO HEA	AERO HEATING-INDIC.	ALPHA	0 4	DFS. NODE
	3-5- 	N-M-(M150-	N-M/(M150	N*RAD	L8 *DE G	DE G
	000	ם•	6.	000.	000.	000.06
	000.	4	4 ur	.000	000.	90.000
	000 .	19/8.5	22.18.7	600	.119	90.053
2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	8,000	33247.7	2278.2	600*	.119	90.063
	12.000	175139,5	12000.9	- 19.495	-251+101	89 e9 1 ft.
,	16,000	574323.4	39353.7	-31.980	-411 4919	89.379
	20,000	1451817.0	99481.1	-73.547	-303.294	88 459
END TILT	20,000	1451817.0	99481.1	-23.547	-303 -294	6.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AND A COUNTY OF PERSONS ASSESSED. A COUNTY OF THE PERSONS ASSESSED.	54 * DDO	3109872,1	213093.9	13,757	177,196	87.173
	28,000	5912495.6	405134.E	22 - 35	05 k* 58 Z	85 ° 54 1
	36.000	16734269.2	1146661.7	ច ទ ទ ទ ទ ទ ទ ទ ទ ទ ទ ទ ទ ទ	591 ,981	79.758
	40.000	25734947.7	1763404.0	60.875	784 . 106	75 ,946
	44,000	37771985.0	2588203.1	77.207	944 0476	71.501
	48.000		3647867.9	94.224	1213,665	66.558
	52, 000	72313016.0	4955015.5	110.979	1429 473	61.328
	56.000	94965216,0	6507184.2	126. 564	1630,226	56 a023
	50° 000	121012081.0	8291961.4	140.387	1808 +274	50 • 770
10 KMS.		137550236.0	9425226.0	147,399	1898,590	47.788
	64, 000	150388448.0	10304881.9	151 4977	1957 \$556	45.639
O MAXIMUM	67 - 708	180537782.0	12370767.5	159,930	2059,996	4) .101
	9 K. UUU	18302/468.0	7.000 LPC7.	100 100	400 6116	26.25
1		110 110 110 110 0		162 001	2110.355	7 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
e se	10° 000	D 30204234C	1255551	151 858	2084.960	32 .092
	90.000	0.052443052	20234095.5	153.779	1980 -767	28 3394
	96.00		22896917.2	139,883	1901.774	25 .127
	83,000	371688200.0	25458731.5	125-130	1511 4755	22 .273
	92-000	## 10 10 10 10 10 10 10 10 10 10 10 10 10	27935275-7	110-819.	1427.414	19 4.7 96
	36,000	441930944.0	30281888.5	97.368	1254 .159	17.652
	100° 000	474282664.U	32498685.5	866 48	1094.832	15.796
	104, 000	504639424 "U	34578784 an	73.760	950 •076	14 189
	108 . 000	572879428 .D.	36513838.5	63 .362	816.142	12.793

with an Inclination of	(40,000 lbs)	
Table C-4. Trajectory Tables for the Mission with an Inclination of	and a Cargo of 18,143.694 kg (40,000 lb	
Table C-4.		

MOCZHCR I=90°N FUEL
TIME SWITH OUR CORP.
3 X
112.000 558834704.0
un i
170.000 605972550 170.000 623234688.0
uç
e '
144.DNN 693755664.D 148.DQN 7033D4496.D
160.000 728794824.0 164.000 734738800.0
176.000 749723640.0 193.000 753478464544
- 1-
197.UIII
-
7
7
76
228.000 768165424.0

Table C-4. Trajectory Tables for the Mission with an Inclination of 90°

TIME AERO HEATING INDIC. ALPHA 9 DFS. N ALPHA 9 TIME AERO HEATING INDIC. ALPHA 9 DFS. N ALPHA 9 ALPHA 9 DFS. N ALPHA 9 ALPHA 9 DFS. N ALPHA 9 DFS. N ALPHA 9 ALPHA				(Continued)	6) (
TIME AERO HEATING INDIC. ALPHA 0 LB*DEG 244.000 768165424.0 52676051.0 .000 250.000 768165424.0 52676051.0 .000 250.000 768165424.0 52676051.0 .000 276.000 768165424.0 52676051.0 .000 276.000 768165424.0 52676051.0 .000 276.000 768165424.0 52676051.0 .000 276.000 768165424.0 52676051.0 .000 377.000 768165424.0 52676051.0 .000 334.000 768165424.0 52676051.0 .000 334.000 768165424.0 52676051.0 .000 334.000 768165424.0 52676051.0 .000 336.000 768165424.0 52676051.0 .000 336.000 768165424.0 52676051.0 .000 336.000 768165424.0 52676051.0 .000 377.000 768165424.0 52676051.0 .000 377.000 768165424.0 52676051.0 .000 377.000 768165424.0 52676051.0 .000 377.000 768165424.0 52676051.0 .000 377.000 768165424.0 52676051.0 .000 377.000 768165424.0 52676051.0 .000 377.000 768165424.0 52676051.0 .000 377.000 768165424.0 52676051.0 .000 377.000 768165424.0 52676051.0 .000 377.000 768165424.0 52676051.0 .000 404.000 768165424.0 52676051.0 .000 407.331 76816424.0 52676051.0 .000 407.331 768165424.0 55676051.0 .000		**	JC/HCR I=90.U 50	JEL 3064K+524K (4C	IK PAYLOAD)		
TIME AERO HEATING INDIC, ALPHA 0 244,000 768165424.0 52636051.0 .000 .000 .000 .000 .256,000 768165424.0 52636051.0 .000 .000 .000 .000 .256,000 768165424.0 52636051.0 .000 .000 .000 .000 .256,000 768165424.0 52636051.0 .000 .000 .000 .000 .256,000 768165424.0 52636051.0 .000 .000 .000 .000 .256,000 768165424.0 52636051.0 .000 .000 .000 .256,000 768165424.0 52636051.0 .000 .000 .000 .256,000 768165424.0 52636051.0 .000 .000 .000 .256,000 .256,000 .256,000 .000 .000 .256,000 .256,000 .256,000 .000 .000 .256,000 .256,000 .256,000 .000 .000 .256,000 .256,000 .256,000 .000 .000 .256,000 .256,000 .256,000 .000 .000 .000 .256,000			:				
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256,000 768165424.0 52636051.0 .000 .000 .000 260,000 .000 .000 260,000 .000 .000 .000 276,000 .000		244,000	758165424.D	52636051 • 11	000	.000	2.275
260,000 768165424.0 52636051.0 .000<		252500	768165424.0	52636051.N	000	* nū0	2.178
268.000 768165424.0 52636151.0 .000 .000 276.000 768165424.0 52636051.0 .000 .000 .000 292.000 768165424.0 52636051.0 .000 .000 .000 308.00 768165424.0 52636051.0 .000 .000 .000 308.00 768165424.0 52636051.0 .000 .000 .000 316.00 768165424.0 52636051.0 .000 .000 .000 324.00 768165424.0 52636051.0 .000 .000 .000 340.00 768165424.0 52636051.0 .000 .000 .000 340.00 768165424.0 52636051.0 .000 .000 .000 340.00 768165424.0 52636051.0 .000 .000 .000 356.00 768165424.0 52636051.0 .000 .000 .000 372.00 768165424.0 52636051.0 .000 .000 .000 372.00 768165424.0 <		260, 000	768165424.0	52616051.0	000*	000.	2.085
292,000 768165424,0 52636051,0 .000 .000 .000 .000 .000 .000 .000 .		268.00H	768165424.0	52636051.0	nun.	מממי	2. c
292,000 768165424,0 52636051,0 .000 .000 .000 .000 .000 .000 .000 .		276. UUU 284.000	168155424 B	52636051.0	000.	300.	1.831
300.00 300.00 .000 .000 308.00 768165424.0 52636651.0 .000 .000 324.00 768165424.0 52636651.0 .000 .000 324.00 768165424.0 52636651.0 .000 .000 340.00 768165424.0 52636051.0 .000 .000 340.00 768165424.0 52636051.0 .000 .000 340.00 768165424.0 52636051.0 .000 .000 340.00 768165424.0 52636051.0 .000 .000 356.00 768165424.0 52636051.0 .000 .000 372.00 768165424.0 52636051.0 .000 .000 372.00 768165424.0 52636051.0 .000 .000 388.00 768165424.0 52636051.0 .000 .000 404.00 768165424.0 52636051.0 .000 .000 404.00 768165424.0 52636051.0 .000 .000 404.30 768165424.0		292,000	768165424.0	52636051.0	•000	000	1.752
308,000 768165424.0 52676051.0 .000 .000 .000 .316.00 .000 .000 .000 .000 .324.00 768165424.0 52636051.0 .000 .000 .000 .324.000 768165424.0 52636051.0 .000 .000 .000 .332.000 .000 .000 .00		300 .006	768165424.0	52636051.0	000.	. noo	1.677
314.000 768165424.0 52636051.0 .000 .000 178165424.0 52636051.0 .000 .000 178165424.0 52636051.0 .000 .000 178163424.0 52636051.0 .000 .000 178163424.0 52636051.0 .000 .000 .000 178163424.0 52636051.0 .000 .000 17816424.0 52636051.0 .000 .000 17816424.0 52636051.0 .000 .000 178163424.0 52636051.0 .000 .000 178165424.0 52636051.0 .000 .000 178165424.0 52636051.0 .000 .000 178165424.0 52636051.0 .000 .000 .000 178165424.0 52636051.0 .000 .000 .000 178165424.0 52636051.0 .000 .000 .000 .000 178165424.0 52636051.0 .000 .000 .000 .000 .000 .000 .000		308, 000	768165424.0	5264605140	000.	000°	1.606
324,000 768165424.0 52636051.0 .0000		316.000	768165424.0	52636051.0	กับน์.	000.	1.537
340,000 768165424.0 52636051.0 .000 .000 1348.000 768165424.0 52636051.0 .000 .000 1356.000 768165424.0 52636051.0 .000 .000 1356.000 768165424.0 52636051.0 .000 .000 1372.000 768165424.0 52636051.0 .000 .000 .000 1389.000 768165424.0 52636051.0 .000 .000 .000 1407.331 768165424.0 52636051.0 .000 .000 .000 .000 407.331 768165424.0 52636051.0 .000 .000 .000		324,000	768165424.0	52536051.0	בים,	000	1.4/2
348.000 768165424.0 52636051.0 .000 .000 1 356.000 768165424.0 52636051.0 .000 .000 1 356.000 768165424.0 52636051.0 .000 .000 1 372.000 768165424.0 52636051.0 .000 .000 1 389.000 768165424.0 52636051.0 .000 .000 1 389.000 768165424.0 52636051.0 .000 .000 1 407.331 768165424.0 52636051.0 .000 .000 .000 .000 .000 .000 .000		340,000	768165424 .0	52635051.0	000	000-	1 . 34 9
356,000 768165424.0 52636051.0 .000 .000 1 364,000 768165424.0 52636051.0 .000 .000 1 372,000 768165424.0 52636051.0 .000 .000 1 384,000 768165424.0 52636051.0 .000 .000 1 40,000 768165424.0 52636051.0 .000 .000 4 40,7331 768165424.0 52636051.0 .000 .000 .000		348-000	768165424*0	52636051.0	. no	000.	1.291
364.606 768155424.0 52636753.0 .000 .000 1 372.00 768165424.0 52636751.0 .000 .000 .000 388.000 768165424.0 52636751.0 .000 .000 .000 384.004 768165424.0 52636051.0 .000 .000 .000 404.004 768165424.0 52636051.0 .000 .000 .000 407.331 768165424.0 52636051.0 .000 .000 .000		356.000	768165424.0	52636051.0	.000	000.	1.236
372,000 768165424,0 52636051,0 .000 .000 .000 .000 .000 .000 .000 .		364.000	768165424.0	52636051.0	000.	000.	1.186
388,000 768165424.0 52636051.0 .000 .000 1 .000 1 .000 1 .000 .000		37.2, 1000	168165474*U	5763601 II	סטט.	000	0.00.1
404,000 768165424,0 52636051,0 .000 .000 .000 .000 .000 .000 .000 .		388,000	768165424.0	52636051 an	000	000.	1.060
404,000 768165424,0 52636051,0 .000 .000 .000 .000 .000 .000 .000 .		3 9F . DO(1	768165424.0	52636051.0	000.	000	1.025
		404,000	768165424.0	52636051 • 0	.000	"បូពូព្	£66°
768165424.0 52636051.0 .0000 .0000	INJECTION	407.301	768165424 .0	52636051.0	000*	000.	.981
		407, 331	768165424.0	52636051 .n	000	000	. 981

Table C-4. Trajectory Tables for the Mission with an Inclination of 90°

TIME TIME
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Table C-4. Trajectory Tables for the Mission with an Inclination of 90° and a Cargo of 18,143.694 kg (40,000 lbs)

(Continued)

			4P.01.10	POSITION	COORDINATES	S		1
	TIMF	*		E	F. F. F.	Σ.	Z F T	1 -
					-			1
	112,000	6402417.1	21005305.2	-43338 °D	42185	47541 *9	155.977.5	1
	116,080	-6404488-1	21612100 ° n	-44849-2	-147143.1	51556.4	2 hans 91	
	123,000	640659941	21013992.7	-45359.3	-152097 45	5590641	185419.0	
-	128 000	5010858.3	71032999.5	-49376.1	7 9 9 1 3	6583U 1	715978°D	
	122 000	5612015	21040035.2	-50882.8		71416.6	343DE	:
	135,000	6415179.6	2104717.0	-52388.2	-171877 .4	7743947	254067.1	
	140.090	6437342.4	21854273.0	-53892.4	176812.4	83906.40	775282.2	
	144,000	6419494.5	21051334.0	-55395.3	-181743.1	90818.7	29796145	
	148-000	6421627.1	21068330.2	6*96895-	-186669.5	98180.3	322113.8	
	152, 000	6423731 .4	21075234 • 0	-58197.1	-191591.4	105993 .2	347746.7	
	156-000	6425799.2	24.08.2018.5	-59895.9	-196508.8	114259.4	374866 8	1
	160,000	6427822.9	21088657.7	-61393*3	-201421 4	122980 .7	403490.1	f _į
	164-000	6429794.9	21095127.5	-62889.2	-206329.3	132158*8	433591.7	٠,
	159, 000	6431708a1	21101404.2	154585 25	2. 25. 25	2 000011	U = 00 / C 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	
	172-000	543555.4°	21107465	- ED8/6-0-	-21613U*2		4 7 6 3 2 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	
	100.000	20122000	2111365187	# 58857 F	-225910.5	173461.9	569100.7	
	184.000	6438637.2	21124137.5	-70345.6	-230792 • 6	194940.1	606758.8	
	188.000	6440157.2	21129124.5	-71832 al	-235669.3	196880.6	645933.8	
	192,000	6441590.4	21133794-0	-73316.7	4.042045-	20 92 94 •U	686627 41	
	196.000	6442901.4	21138127.7.	- 74799.7	-245405.8	222150.4	728840.1	
	198, 156	6443568.9	214 4031 9 • 0	-75598 .1	-248025 44	22 97 76 .5	752219.6	
SEPARATION	198-156	6443568.9	21140318 D	75598.1	24 8025 4	229276.5	752219.E	ı
•	200° 000	644411D.2	21142093.7	- 16280 • 9	- 250265 *4	235430 •5	772409 99	
	- 900-102	6445372.1	- 21145577 5	-77760,3	-255119.0	248773.3	16185	
	208, 000	6446080.7	21148558.7	- 19737.8	- 259965-7	252110 .4	859442	
	208 • 356	6446113.1	21148664.7.	- 79295 3	260155.2	262629.2	86164494	
ORB IGNITION	208, 156	6446113.1	21148664.7	- 19295 - 3	-250155 +2	262679.2	861644.4	
8567W HIN-H	208-156	6446113.1-	51 148664 °7	-79295 .3	60155	262629 2	96 16 ttd . tt	
	212, 000	6445853.4	21151126.5	- 80713.5	-264808 -2	275550 •6	904037.3	
	220×000	6448142.2	21155322.2	-83659.1	-27##72 -3	303131 .2	994525.1	
	כככ כככ		2 - 1 - 2 - 2					

Tabl	Table C-4.	Trajectory	Tables for	the Missic	n with an	Trajectory Tables for the Mission with an Inclination of 90°	of 90°
	:	and a C	and a Cargo of 18,143,694-kg (40,000-1 bs)	143,694-kg	. (40,000-1	(sq	
			(Continued)	(penu			-
		MDC/HCR I=90.	MDC/HCR I=90.0 FUEL 3868K+528K (486K-PAYLOAD)	524K (40K P)	YLOADI		
	;			;			
	TI ME		A PULLU: 13	.	COURLING I		
	ပ မ ပ	Σ	 -	Œ	 ⊔.	E	
	244.000		. 2116n135.d	-92447.6	-303305.6	391737.0 128	1285226 .3
	252, 000		21159041.2	- 95360 .0	-312860-8	7	388877.5
	250,000	1 6447308.5	21156558.7	-18265.4	-322386 e	489806-4-150	496087.5 6069763
	276.000	_	21147142.7	-104042.3	-341346.2	_	1721671 0
	294, 600		2-1140157 -7	-106917.2	-350778-4-		840307.5
	292.000	_	21131581 . 0	-109782.1	-360177.6		1 96 30 30 . 4
	303, 000		21121356.5	-112636.7	-369543 all	1	208994 6
	316,000	1 6429974.1	21095715.2	-115480 */	-318813eE	718512.7- 23	2257325 a2
	324.000	_	21080150.0	-121135.9	-397427.4		2498064.3
	332, 000		21082878.2	-123946.5	-406649-7	1	2643794 0
	340.000	1 6413962.1	21043182.5	-126745°F	-415831 a 9 -424936 a P	851837 ab 27	2,194,42.8
	356.000	_	20987756.2	-172307.E	-434080.2		3113317.3
	ኝፍ 4 " በባስ		20971612.0	-135070.2	-443143=6	1	3281 344 *3
	372.000	_	20943042.2	-137820.0	-452165.4	r,	3455225 .5
	340, 000		-24 446 FIBUZ	-140556.9	-461144.7	ľ	1634935-9
	3 8 8 • 000	u	2087821F.n	-143280.6	-470080°7		3820448 2
1	395, 1100		20841755.7	-145990 *8	-478972 .5	1	4011732.5
	404.000	_	20802461.2	-148687.3	±487819.2		4208756.7
INJECTION	407, 301		20785399.0	-149795 *8	-491456 •0		42.91.712.0
	467.301	1 6335389.7	20785399.0	-149795.8	-49145F.D	1308113.8 42	4291712°C
			•	ž	1		

Table C-4. Trajectory Tables for the Mission with an Inclination of 90° and a Cargo of $18,143.694~\mathrm{kg}$ (40,000 lbs)

			APOLLO 13	VELOCI	Y COMPONENTS		ŀ
	7 IME	X SFC	XDOTFT/SEC	MISEC	YDDI. FT/SEC	MISEC	FTISEC
LIFT-OFF	000°	.000	. 000.	-191.618	-1257 -027	-13.984	_45 8 8 B
		. non	000*	-381,618	-1252.027	-13.984	-45.880
	4 DUO	17.381	57.026	-381.617	-1252.026	-14 -048	-45 -0 89
- 1	8-000	35,576	116.720	-381.622	-1252.039	-14.112	-46.299
BEGIN TILI	12 DBC	10 00 00 00 00 00 00 00 00 00 00 00 00 0	115.720	-381.622	-1257-039	-14.112	-45.233
	16,000	74,405	244.110	-381.461	-1251-839	-11,391	-37 0372
	20,000	95,022	311,751	- 181 . 516	-1751.693	-7.834	-75.703
END TILT	23, 000	95.022	311.751	-331.515	-1251 -693	-7.834	-25 *703
	24.000	.116,458	382.081	-381.462	-1251.515	-2.884	-9.461
	28, 000	138.676	454 4973	-381.399	-1251 -308	4 .] 5.]	13 4618
	32.000	161,567	53U°075	-381,326	-1251-DE9	13.592	44.593
•	36, 000	184.976	606.877	-381,244	-1250 - 799	75.726	50 h = 16
	40.000	208.674	684 625	-38.1 , 152	-1750-499	40.788	133.819
	44,000	256.25	847 189	- 351 4D33	-1230 43 63	90.126	75,015
	52.000	776.597	901.00	- 380.822	-1249,415	104.261	342 .064
	56.000	296 157	971,645	- 380 693	-1248.993	131-179	430.377
	50,000	314.378	1031.473	-380.555	-1248.541	161 .184	528 817
10 KMS.	62 * 307	324.730	1065.386	-380,471	-1248,266	180.179	591,140
	54° DON	332°302	1090.230	-380°408	-1248.057	194.963	639 6644
O MAXIMUM.	£7.708	348,805	.1144.374	-380.763	-1247,583	229,933	754,375
	54, NUN	350-101	1148.625	-380.251	-1247.544	232 4845	763 -928
	72.000	367,789	1206,657	-380-086	-1247.001	275.081-	902-496
NEX NEX	73, 690	375.190	1230.939	- 380-013	- 1245-763	294 -182	365 -163
	000-94	385, 382	1264,375	-379,911	- 1246.427	321.927	1056,192
	80, 000	402.845	1321 . 671	-379.727	-1245.823	373 • 6U2	1225 .730
	84-00U-	419,997	1377 . 944	-379,534	-1245.189	430.163	1411.295
	48, 000	435.534	1432.200	-379-331	-1244 *526	491.486	1612 4487
	92.000	452,247	1483.751	- 379 , 12 u	-1243.832	557 . 474	1828,983
	96, 000	455 ° 358	1532.049	-378.900	-1243 4109	628 •020	2060 433
	100.000	4.80,564	1576,653	-378,670	-1242,356	703.011	2306.467
	מטט מטנ	669,694	1517.109	278.837	1201.570	444 404	2555 275
	152 9:54	337 . 37 .			7	てンてきブロノ	0/00000

Table C-4. Trajectory Tables for the Mission with an Inclination of 90°

		and a	Cargo	of 18,143,694	kg (40,000	1bs)	
			(Con	(Continued)		- 1	
	2	MOC/HCR I=90.0 FUEL		3864K+524K. (48K PAYLOAD)	PAYLOADI		. 1
	1 3 1		APOLLO	-13 VELOCITY	Y COMPONENTS		1
	SEC	MISEC	FT/SEC	MISEC	FI/SEC	**************************************	2001 F1/5EC
	112.000	513.541	1684,846	-377.928	-1239,921	953.316	3127.677
	116.000	521.740	1711.745	-377.663	-1239.050	1044.858	3429-012
	176.000	528#522	1733,995	-377.388	-1238.151	1140.377	3741.393
	128-000	155.888 527.867	1751 4342	-3114105	-1231-222	1254.940	40672718
	132,000	54 Pa4 33	1773.073	376.513	1245.278	1450.663	4759.293
	136.000	541.292	1775,891	-376.203	-1234 .262	1561.041	5121.525
	140, 000	539.762	1770.873	-375,885	-1233.218	1672 4258	5486.411
	144.600	535.944	1758.346	-375,558	-1232.145	1784.181	5853.612
	148,000	259.942	1738.654	-375-222	-1231 .044	1896 .724	6222 *847
	152.000	521,852	1712.114	-374,878	-1229,914	2000-811	6593,869
	156,000	511 . 755	1679.023	374 - 525	-1228°756	2123 4776	- 6966 o457
	154,000	489.767	1594,265	-3/4.165	-1227.570	221/.358	7715-560
	168.000	470.334	1543,092	-373.414	-1225,112	2466 362	8091,738
	172, 000	453,042	1496.359	-373.027	-1223 .841	2581 4291	8468 803
	176.000	434.119	1424 . 274	-372.631	- 1222.542	2696.451	8846.624
	140,046	#23°65#	1357.034	-372.226	-1221 -515-	2811 805	9225 082
	184.000	391,614	1284,822	-371.813	-1219.860	2927 . 320	9604,069
	192.000	343,255	1126,163	-370.962	-1217.066	3158,716	10363,240
	196,000	317.002	1040.033	-370-523	-1215 628 -	3274 "543	-10743 *250
	198,156	302,303	991.808	-370.284	-1214.841	3336 . 987	10948,120
SE PARATEON	194,156	302 , 363	943 * 80-6	-370,284	- 1214.841	3336-987	10948,120
	200°000	784.532	933,832	-370.078-	-121M . 161	3336 . 375	10946.114
	204,000	245.324	808.148	-3694621	-1212 4667	3334 - 992	10941 -574
	208.000	208,036	682,532	-369.157	-1211.145	3333.530	10936.777
	208,156	206.546	677.645	-359-139	-1211 *086	3333 0471	10936 -585
OPP IGNITION	208.156	206.546	677,645	-369.139	-1211.086	3333.471	10936.585
- H-W - W - H-W - H-W	704 Par-	4 4 4 4 5 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	644*645		1200 186	3333-441	10936~585
	220, 000	135.732	445.315	-367,715	-1205-2013	3500.310	11505.355
	228.000	96°583	284 DF4	-366,711	-1203,120	3628.318	11903.931
	236, 000	36.266	118.984	-365.673	-1199-716-	3753+563	12314 -838

Trajectory Tables for the Mission with an Inclination of 90° FI/SEC. 21369.764 24985 *375 25279 * 257 12738 .749 15081.838 17899 -741 22827-011 24269.982 13176 400 16142,411 22100 .024 13528 -600 14096.235 14580 .286 15502 098 16704 .286 17289.423 19204 4985 19905-289 23550 429 25279 .257 20636,527 ZDOT 5455 .841 56.50 .208 3882 . 771 45.96.944 4755.519 5853 4680 7705-118 4016.167 4296 .532 4444 .D71 4920-207 5091 466 5269.816 6290.013 6513,504 6736 .087 6957.E73 7178.171 1397.493 7615-542 7705.118 4153.997 6067.132 MISEC and a Cargo of 18,143,694 kg (40,000.1bs) VEL OCITY COMPONENTS -1159.628 -1155.018 -1150.300 -1192,576 -1135.494 -1125,086 -1181.042 -1176.978 -1172.805 -1168,522 -1154 -129 -1145 473 -1140.537 -1130,344 -1119,722 -1108,675 -1100.618 -1184,997 -11114.251 -1196 . 201 FI/KEC MOC/HCR ISSO.D FUEL 3064K+524K (40K PAYLOBD) YDOI -354.827 -353.455 -352.050 -350.611 -351-187 -341,291 -337-924 -363.497 -362,359 -358-743 -357.471 - 356 , 165 -349.140 -347.636 -346.099 -344.529 -342.926 -339.624 -336 -192 -335.468 -335.468 -364 4602 -MASEC (Continued) APOLLO 13 -1827,373 -2063,091 -2309,192 -- 22-3 - 945 -402.503 .586,313 -775,816 -971-491 -1383-528 -1501.123 -2566.714 -3120.673 -3417 .491 -3727 .104 -4384.565 -4732,552 -5245.615 -11173.867 -2836 -844 -5245*615 -50.239 -4049,502 -5093-151 ---F1/SEC YOUT -628.830 -235 469 -122.683 -178,708 -421e699 -488 . 022 M/SEC 68-258 296,111 -357 . 795 -556-983 -782.334 -854-670 -1041,651 -1234,288 -1336.446 -1442-485 -1552.393 -1598,863 -1598.863 -15,313 -951 . 181 -1136.021 252,000 260,000 268,000 324,000 356.000 404. 000 300-005 372,000 39.4. 000 276,000 292,000 30%, 000 340,000 000-045 244,000 284-000 336,000 364 . DOD 000-308 407, 301 Table C-4. 45 TIME THUECTION

Table C-4. Irajectory Tables for the Mission with an Inclination of 90°	4 kg (40,000 lbs)	
the Mi	143.69	(, , , ,
irajectory Tables for	and a Cargo of 18,143.694 kg (40,000 lbs)	(1000)
rante c-4.		

	ОW	C/HCR]=90.0	MDC/HCR I=90.0 FUEL 3064x+524K (40K PAYLOAD)	SZUK (UOK PAY	LCADJ		
						· - ;	
	TI MF	XDOOT	APOLLO 13 AC T	APOLLO 13 ACCELERALION COMPONENIS YODOT	OMPONENTS	70007	.
	SEC	M/SEC**2	F1/SEC**2	MISEC**2	E1/SEC**2	M/SEC**2	F1/SEC **2
LIF 1-0FF	. ממט	4.217	13.836	.00.	.002	016	052
	. 600	4 . 2 1 7	. 13.83€	* DD1	.082		052
	4 • 000	6.447	14,589	000*-	002	016	052
	8, 000	4 .651	15.259	002	5003	016	053
BEGIN TILT	8.000	4.651	15.25	n02	005	016	053
* 100 1 100 1 100 100 100 100 100 100 10	12:000	35 G	15.925			8228	
	16.000	r. 054	16,582	D1U.	.033	. 703	2.306
	20.000	5.255	17.240	.012	640°	1.677	3 25 35
END TILT	20.000	F. 255	17.240	.012	340.	1.077	3,535
	24.070	5.458	17.906	.A15	- 1048	ት የተያሉ ተ	4.868
	28.000	5,646	18.523	. 1117	950.	2.047	6,716
	32, MMB	5.195	19.(114				8.812
	36.000	5.961	19.359	.022	, n 7 1	3 . 39]	11,126
	40.00	5 4 47 5	E # # 6 +	.024		++++++++++++++++++++++++++++++++++++++	15.547
	111111° b b	7 8 8 C	19.633	•117e	200	50 T T T T	10,103
	# 8 DUO	10.1 1.1 1.00 1.00	18.236	• 029			18 66 UT
	52.000	5,137	15 8 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	, [13]	102	1 386	20.351
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	# # C 17 :	10011	775		7-951	25.095
THA CH	52,307		- C	25.0	121	6 5.20	22.051
?	64.000	4, 466	14.653	.138	12.5	8 4 6 8	29,357
WIN IXON O	57,708	4.437	14.546	.040	-132	426.6-	32 -560
•	68.000	4,435	14.549	. 040	.172	10.004	32.820
	72, ADA.	4 . u 1 n	P 7 4 5 1	. D4 3.	-144	- 11-125	36 4 99
14 KMV.	73.680	4,400	14.437	ት ክሀ •	. 143	11,615	38,107
	76,000	4.385	14.325	. n45	147	12.308	40 -379
	80.UPD	4,342	14,20F	, n 4 7	. 155	13.535	44.408
	44. NOA	4.221	13.350	.049	152	14.740	48.359
	88.000	4.039	13,251	, fi52	J71.	15,918	52°225
•		3 - 811.	12.502		.177	17-47.1	-56-009
	96 • 000	3.544	11.629	.n56		18,197	59.701
	199,000	3.249	311.659	• N58	*192	1.9.2.94	63 - 301
	100.001	2,923	1,07.0	151	60.	20. 351	F.F. 75.8
					:		27.33

Table C-4. Trajectory Tables for the Mission with an Inclination of 90°

	¥.		MDC/HCR.I=90.0'FUEL 3069K+5	3064K+524K (40K PAYLOAD)	, 720,		
			APOLLO 13	ACCELERATION COMPONENTS	OMPONENTS.	,	
	11ME	×10001 ₩≠5£€**2	01 FT/SEC**2	M/SEC**2	FT/SEC**2	M / SEC * *2	FT/SEC**2
	112,000	2.227	7.305	. 065	412°	27.386	73.444
	116,000	1,873	5 c 3 t t	1900	. 22.1.	23.384	76.718
	120,000	1.118	3 .821	.070 .072	223	25,359	83.100
	128,000	.817	2 • 5 3 2	• 074	.243	26.351	86.453
	132.000	477	1.565	076		27.356	89.750
	158,000	- 5 G 4	-2.218	11.0	, 25.5 , 26.5	27,895	91.523
	144,000	-1.232	- n . 0 n -	.083	.272	28.052	92 .1165
	348.000	-1,765	261"5-	.085	.279	28.207	92,542
	152,000	-2.276	-7.466	780.	. 7.9.F.	28.334	92,960
	150.000	-3.732	- 10.605	.091	.30n	28.543	93 645
	164,000	-3.682	-12,080-	#6U*	307	28.627	93,922
•	158,000	-4.114	-13.497	960.	0314	28.700	94 .161
	172,000	4 = 530 ·	4.8F	86U°	*321	28,763	94 . 366
	176.000	-4.930	-16.173	.100	.328	28.816	0 a 2 a 6
	180-000	5,315	17.439	-102	335	28.860	94.685
	144.000	00 F	-18.550	יים. פני	2 2 2 2	78 . M 96	94 . 304
	192,000	10.30	- 20.979	109	i ug	29.94.8	n26° n6
	196.000	-F. 73A	-22,081	a 1.1 a	,363	28.964	95.028
	198,156	-6.907	-22.660	-112	*357	29.971	95 .049
	200.000	- 9 - 5 80	-31.430	.113	.370	- 336	-1 .103
	204 - 800	-9.574	-31.412	- C	.377	356	-1.167
	208.000	- 9.569	-31,396	.117	.384	-*375	-1.231
	- 208 _e 156	-9.569	-31 + 395	4117	#38t	376	-1. 2.34
ORB TENITION	208-156	18° 487	-77.844	117	3394	16.836	55°236
13 to 5 to 14 to 1	212,000	- 5 945	-19.505	611-	.301	14.524	47.650
	220, 000	-6.075	-14-930	.123	•405	14.959	49 -078
	228.000	-6,215	-70.389	.128	.419	15.417	FI). 579
	076.000	325	-213.887	132	5r 4°	00° "L"	52 -161

Table	- C-4.	Trajectory Tables for and a Cargo of 18,		the Mission with an Inclination of 90° 143.694 kg $(40,000$ $1bs)$	with an (40,000 1	Inclinati bs)	°06 Jo uc
			(Continued)	(pa		. ;	
		#3C/HCR [=90+0	MOCZHOR I=90.0 FUEL 3064K+524K (40K PAYLOAD)	ZUK LUNK PAY	1040)		AMAGINETURE A.
				APOLLO 13 ACCELERATION COMPONENTS	S IN 3 NO GWO		
	T I WE	1.00.X 0.**3.6.V.X	1 FIXSFC**2	YDDOT M/SEC**?		ZDDCT F1/SEC**2 M/SEC**2	0.T F4.4 SEC**2
	6 6 3	,				**************************************	
	100° 4 47		92h* /-	e i		5 - 4 U G	25.835
	252,000		-22.009	0 a .		16,946	55.598
	250,000		-22,639	ំ] ជជ	474	17.517	57.470
	268.00U		-23,323	941.	, C. C.	JB . 123	59,459
	276,000		-24.063	153	.501	18.758	61.576
	294.010	+	-24.867	.157	- 5335-	+8.457	63,837
	292, 000		-25.739	.151	.529	20.195	66,256
	300,000		-26.689	.165	5.85	26.987	68.853
	33 A. NA	- P.451	-27.724	. 169	* 57.76	21.939	71.651
	316.000		-28.845	. 174	ថ: ៤. ៤.	22.760	74 6-73-
	324,000		- 711.1133	.179	.533	23.760	256.77
	332 . mmr	1	- 4 } , 4 = 3	.182	1 -600°	54 ° 648	- 41,522
	340°000		- 32 - 952	.18€	.61U	-26.038	R5 .427
	348.000		509° h2-	151.	₽624	27,346	89.718
	356, กกต		-36,303	*19a	e F 3 7	27.989	91 -828
	364 . DRU		-37.902	.198	.653	27.881	91.475
	372. OU	-12.040	- 39,501	*202	. 664	27.75	-91 .084
The state of the s	3.8 C. Ufft	1	-41.49A	. 206	£13.	27.632	90.657
	388,000		2-42.54-	.210	.690	27.490	90 - 1 92
	39F . DDD		-64,281	2]4	. 704	27,338	A9.690
	484, กกุด		530050-	a 21 g	-717	27.173	89.152
INJECTION	407.301		-46.516	.22h	. 722	27 # 1 02	88,919
	437, 381	-14.178	-46.516	.220	• 722	27.102	90,919

Table C-4. Trajectory Tables for the Mission with an Inclination of 90° and a Cargo of $18,143.694~\mathrm{kg}$ (40,000 lbs)

(concluded)

3W I .	R0401	ROADT SUXING HCR SHUTTLE	. SHUTTLE . 12842778+n7 M	RANGE ANGLE *11560655+02 DEG
INFRITAL VELOCITY	.78764A32+D4 M7SFC	RADIUS	.647U7E21•N7 M	FLIGHT .41538776-06 DEG Path angle
INCL	. Regassag+D7 DE6	DES.	. 988661492+718 1756	FLIGHT .18209864+03 OFG
601 4 T	.23330277+A2 OFG	T & 100	,23198669+82 DEG	LONG11960413+03 DEG
INERTIAL Azimuth	.180000000+83 066	5	*51196533]+11 N**2/SEC	
WEIGHT	.29274236+NF LRS	63	F1163586•N8 M**2/SEC**2	£4
KEDLFRIAN	KEPLERIAN ORRITAL PARAMETERS			
ECNTRICY	. 7/19/79451-02	APGGET RADIUS	.65632591+N? M	PERIGEE .64707444407 M RADIUS
A POGEE HF TGH T	*99942798+DZ NM	PERIGEE HFIGHT	.4998863+D2 NM	

REFERENCES

1. McDonnell-Douglas, "Detailed Mass Properties," Report MP-8A, March 15, 1971.

APPROVAL

PERFORMANCE VERIFICATION TRAJECTORIES FOR THE MCDONNELL-DOUGLAS HIGH CROSS-RANGE SHUTTLE CONFIGURATION

by Orval E. Etheridge

The information in this report has been reviewed for security classification. Review of any information concerning Department of Defense or Atomic Energy Commission programs has been made by the MSFC Security Classification Officer. This report, in its entirety, has been determined to be unclassified.

This document has also been reviewed and approved for technical accuracy.

C. C. Dearman

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in for facinetes

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